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The OIL and GAS JOURNAL

PRODUCING REFINING ENGINEERING MARKETING

Published Every Thursday TULSA, OKLAHOMA, JUNE 20, 1929 $6.00 a Year

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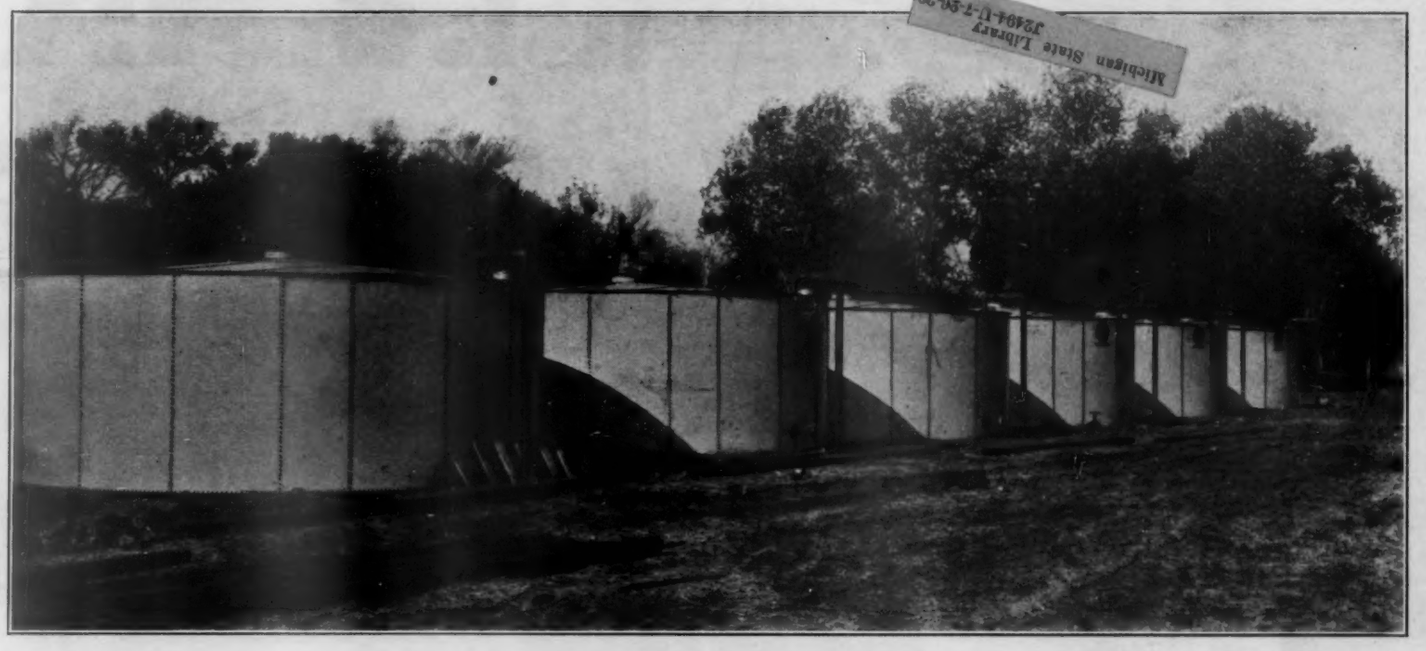

DURABLE MALONEYS IN KANSAS

Illustrated are six 500-bbl. Low Type MALONEYS used by the Bu-Vi-Bar Petroleum Corp. at Valley Center, Kansas.

Tank Buyers obtain maximum durability in MALONEYS because these tanks are manufactured of rust-resisting Keystone Copper Steel—an exceptionally long lived material.

Other points of MALONEY excellence are: Our patented "crimp" seams and joints, packed with our special gasketing and dressed with our Gaso cement; Rigid steel channels reinforcing all seams, including deck seams; Special bolts with a tensile strength of 90,000 pounds; large cleaning out plates set flush with bottoms; Maloney special pearl gray paint; the most efficient valves and thief hatches.

"Alone in Quality"

MADE OF KEYSTONE COPPER STEEL

MALONEY TANK MFG. COMPANY
Tulsa, Okla., U.S.A.
Distributers at All Principal Petroleum Points

MADE OF KEYSTONE COPPER STEEL

Howell Aluminum "4-in-1" Vacuum Pressure Valve and Thief Hatch—The BEST and LATEST Deck Equipment—POSITIVE Safety

Sizes: 12 to 10,000 Barrels

Packed in Steel-Bound Crates for Export

MALONEY

MALONEY PATENTED BOLTED COPPER-STEEL TANKS

Advertisers' Index on Page 33

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"Hey, Joe, ask the P.A. to order lubricant for the Nordsrom Valves"

"Merco" Lubricants have been developed to give users of Nordstrom Valves the utmost in satisfactory valve service. To insure satisfactory operation, lubricate your Nordstrom Valves with the proper "Merco" Lubricant. Lubricant numbers and services follow:

Petroleum Industry

No. 3 Lubricant, for mineral oils, gas, organic solvents, naphtha, etc., for temperatures up to 300 degrees Fahrenheit.

No. 6 Lubricant, for hot oils and gases and asphalt up to 525 degrees Fahrenheit.

No. 260 Lubricant, for boiler blow-off, hot water, saturated steam and strong alkalies up to 400 degrees Fahrenheit.

No. 315 Lubricant, for mixtures of oil and water, dilute acid and alkalies such as agitator draw-offs, casing head gas and natural gas.

No. 421 Lubricant, for strong acids, chemicals and recovery acids up to 250 degrees Fahrenheit.

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No. 3 Lubricant, for mineral oils, gas, organic solvents, naphtha, etc., for temperatures up to 300 degrees Fahrenheit.

No. 315 Lubricant, for mixtures of oil and water, dilute acid and alkalies such as agitator draw-offs, casing head gas and natural gas.

No. 385 Lubricant, for general gas distribution service.

Natural Gasoline Industry

No. 3 Lubricant, for mineral oils, gas, organic solvents, naphtha, etc., for temperatures up to 300 degrees Fahrenheit.

No. 567 Lubricant, for hot oils, gases and asphalt up to 525 degrees Fahrenheit.

No. 315 Lubricant, for mixtures of oil and water, dilute acid and alkalies such as agitator draw-offs, casing head gas and natural gas.

Ask for Catalog.

"Merco" Lubricant is packed in convenient cartons and can be warehoused without fear of deterioration. Packed 12 and 24 sticks to the box, according to size. In one and 5-gallon pails in bulk.

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Subsidiary of The Merrill Company

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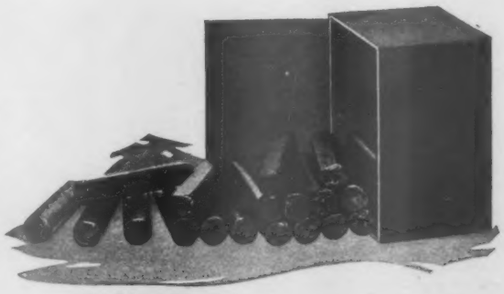
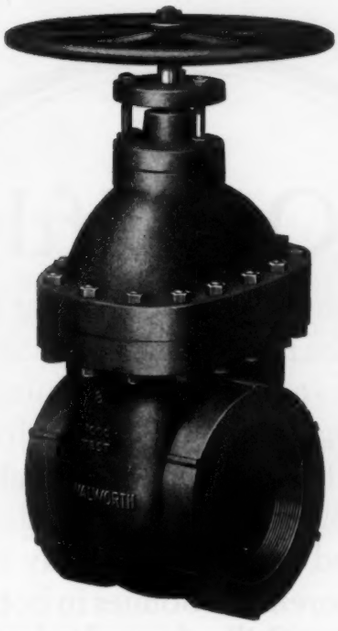
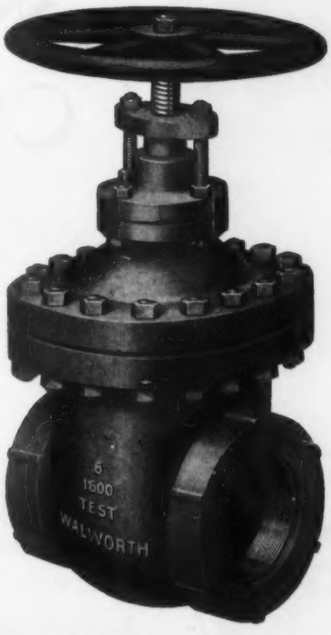
MERCO



Walworth Iron Body Double Disc GATE VALVES





700 lbs. ...TEST...

Walworth 700 lb. Double Disc Steel Iron, Bronze Mounted and Bronze Stem, the accepted equipment for the difficult spots around the well in pump houses and along the pipe line right of way. Recommended for 400 lbs. pressure cold oil, water or gas.

1000 lbs. ...TEST...

Walworth 1,000 lb. Double Disc Steel Iron Gate Valve, Bronze Mounted and Bronze Stem, a never failing valve for heavy duty. Recommended for 500 lbs. working pressure cold oil, water or gas.

1600 lbs. ...TEST...

Walworth 1,600 lb. Double Disc Steel Iron Gate Valve, Bronze Mounted and Bronze Stem, for use on the high pressure lines. Recommended for cold oil, water and gas service at 800 lbs. working pressure.

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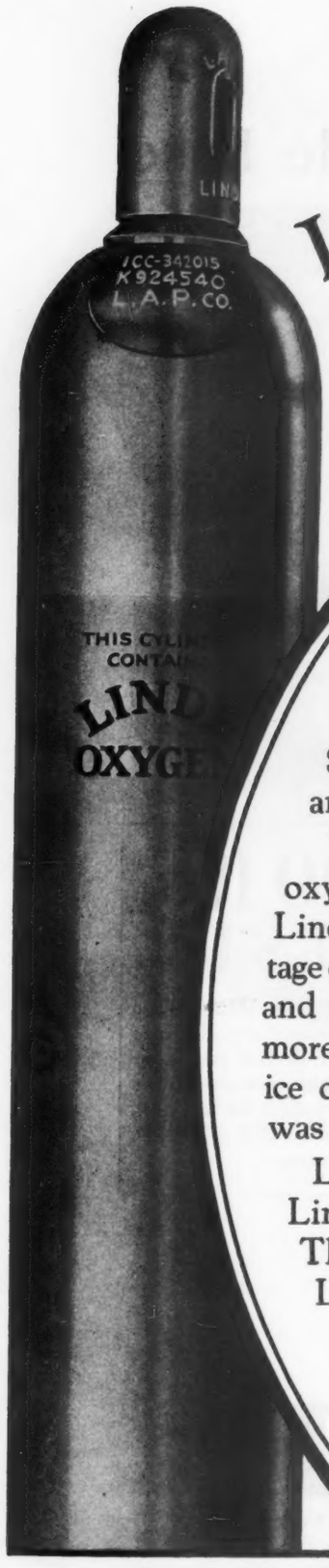
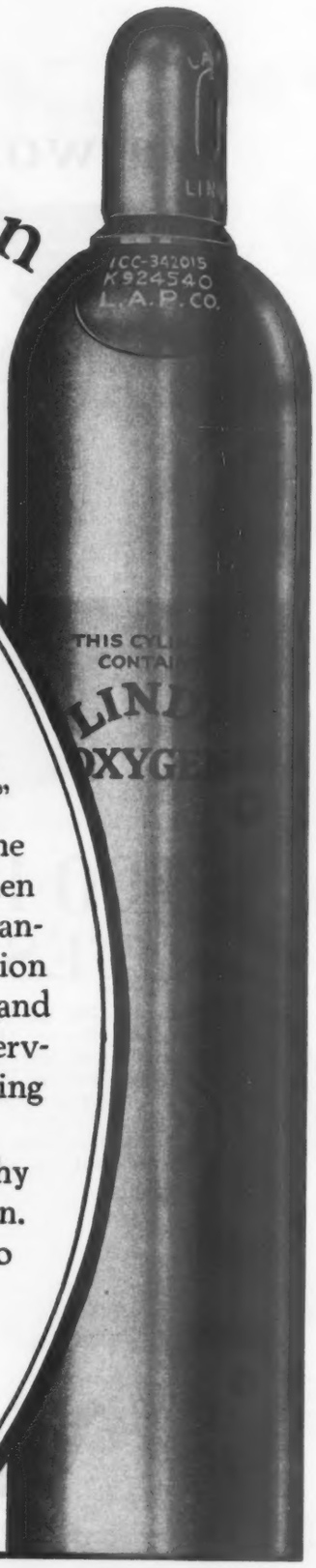
Walworth Company, General Sales Offices: 51 East 42nd St., New York
Plants at Boston, Mass.; Kewanee, Ill.; Greensburg, Pa., and Attalla, Ala.

Distributors in Principal Cities of the World

Walworth Company, Limited, 620 Cathcart St., Montreal, P. Q.
Walworth International Co., New York. Foreign Representative

The Oil and Gas Journal, issued weekly by The Petroleum Publishing Company, 114-116 West Second Street, Tulsa, Oklahoma. Subscription price $6.00 a year; 15 cents a copy. Entered as second-class mail matter December 15, 1911, at the post office at Tulsa, Okla., under the Act of March 3, 1879.





Lower Production Costs through Linde

"One-fifth

off our entire production cost of steel barrels is the result to us of Linde Process Service," says a prominent manufacturer, "an annual saving running well into five figures."

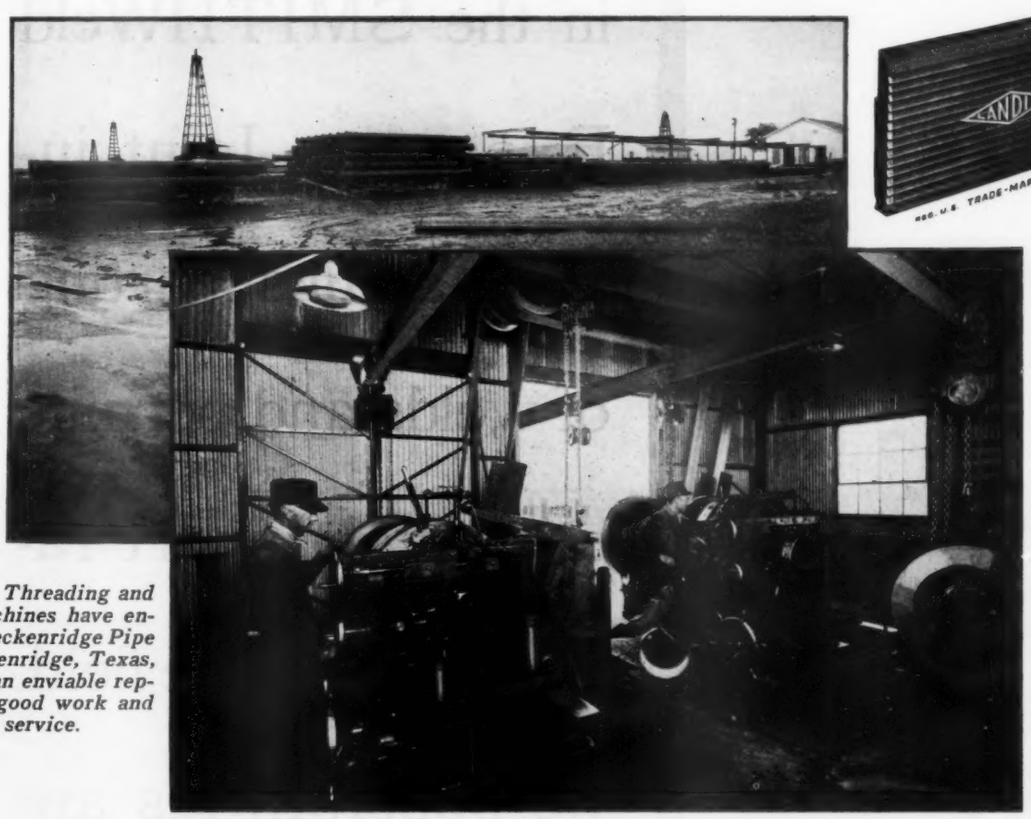
This manufacturer was effectively using the oxy-acetylene process of welding and cutting when Linde was called in. He was already taking advantage of all its apparent economies in both production and maintenance. Still, through the broader and more comprehensive experience of the Linde Service organization, this important additional saving was effected.

Linde Process Service is but one reason why Linde Oxygen has the greatest sale of any oxygen. This Service is available without cost to Linde users.

THE LINDE AIR PRODUCTS COMPANY
Unit of Union Carbide and Carbon Corporation

64 Plants UCC 154 Warehouse Stocks
General Offices: Carbide and Carbon Building
30 East 42nd Street, New York

LINDE OXYGEN



Landis Pipe Threading and Cutting Machines have enabled the Breckenridge Pipe Yard, Breckenridge, Texas, to build up an enviable reputation for good work and quick service.

WHEN it is considered that one bad pipe thread can cause a loss of thousands of dollars, the vital importance of cleanly cut, correctly tapered threads is fully realized.

The Landis chaser, with its "shearing" action and its permanent throat—which always insures the same length of cutting edge—is particularly well adapted to producing well formed threads on all classes of tubular goods—threads which are correctly tapered for their full length.

The sturdy construction of Landis Pipe Threading and Cutting Machines is especially desirable in an oil field machine—where all equipment is subjected to heavy duty service. Quick set-up changes and high speed operation further insure the flexibility and the high production that makes the operation of Landis machines profitable.

Details in Catalogue No. 31—it will be sent upon request.

LANDIS MACHINE COMPANY, Inc., Waynesboro, Penna., U. S. A.

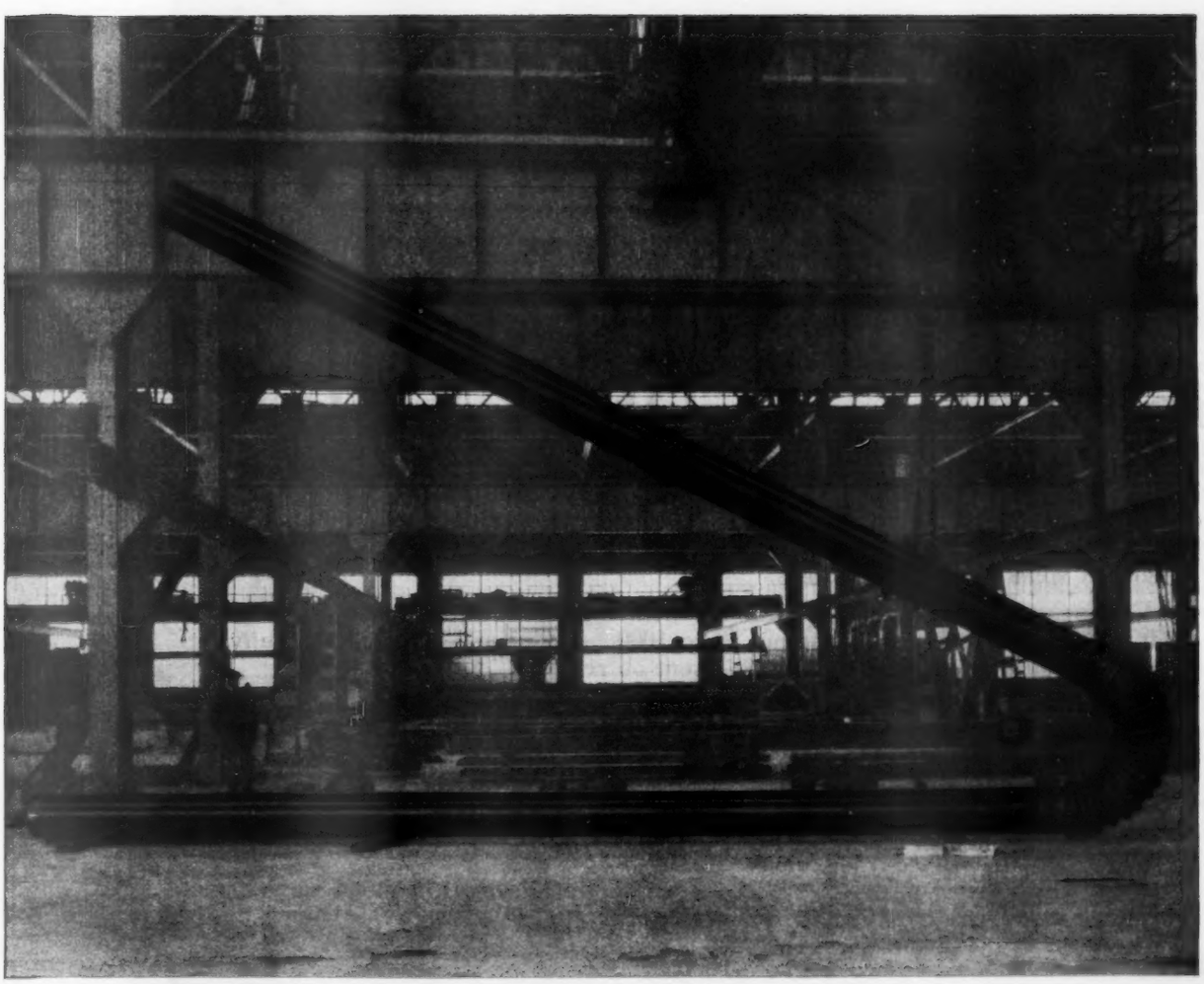
REPRESENTED IN THE DOMESTIC OIL FIELDS BY: Colcord-Wright Machinery & Supply Co., St. Louis, Mo.; D. S. Mair Machinery Co., Houston, Tex.; Woodward, Wight & Co., New Orleans, La.; Herberts Machinery & Supply Co., Los Angeles; Herberts Moore Machinery Co., San Francisco, Calif.; Hendrie & Bolthoff Mfg. & Supply Co., Denver, Colo.

The "come and go" in the SMITHWeld Expansion Joint insures against parting of welds and permits extremely short radius bends in the field. Its possibilities are strikingly illustrated in the picture opposite.

SMITHWELDED

A. O. SMITH CORPORATION

Oil & Gas Field Products Division



LINE PIPE

General Offices: Milwaukee, Wis.

District Offices at: New York - Tulsa - Houston - Los Angeles

A large installation of CP Gas Engine Driven Vertical Gas Compressors in the Seminole Field

ECONOMICAL
in SPACE—in OPERATION

FOR compressor service of all kinds this compact, self-contained, high capacity Diesel or gas engine driven compressor fills every requirement. A large variety of interchangeable cylinder sizes can be supplied, adapting it to widely varying conditions or to work of an experimental nature such as encountered with the flowing of wells by compressed gas.

CP Compressors of this type are available with a capacity range from 49 to 578 cu. ft. per minute and pressures from 60 to 1000 pounds per square inch. Fully illustrated and described in Bulletin 798 sent on request.

Chicago Pneumatic Tool Co.

6 East 44th Street, NEW YORK, N. Y.

Sales and Service Branches all over the World

Whealton & Townsend Co., Inc., *Authorized Distributors*

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C-290

CHICAGO PNEUMATIC

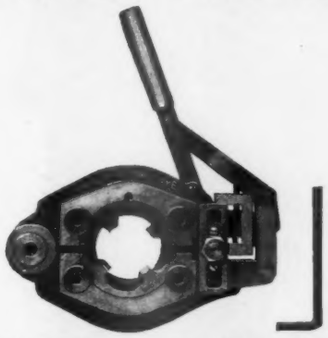
COMPRESSORS

A Letter from Harry G. Nye

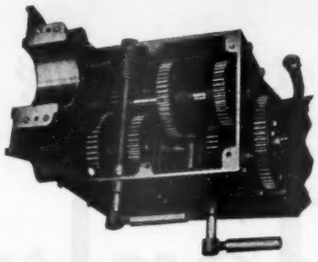
To the Oil Men of the U. S. A.

NYE POWER MACHINES

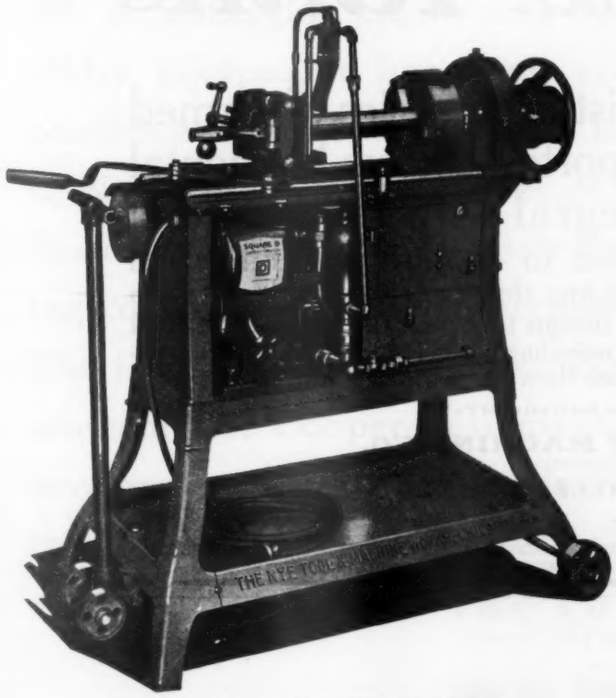
All Gear Driven—No Belts or Chains



Quick Opening Die Head With Trouble Proof Ring Type Dies. (No Chasers)



Gear Case running in oil assuring perfect lubrication.



No. 100, Capacity ⅛ to 2 inches inclusive.
No. 200, Capacity ⅛ to 2½ inches inclusive.

JUNE—THE MONTH OF BUGS, BRIDES AND JUNIPER WINE

FELLOW CITIZENS:

I haven't any favorite month, but, if I had, I think it would be June—the month of June-bugs, and June brides, and juniper wine (or it was once), and other things. Soon the little lambs will be gamboling on the green, and will lose their little hides a little later, as lambs always do when they gamble on the green.

But, of course, the real gambling isn't done by the lambs but by the sheep. For this is the time of year when the June bridegroom takes the June bride for better or for worse, and gets both. One day she is as sweet as sugar, but that night the sugar ferments.

And, as for the juniper wine, I don't know very much about that, but I used to hear something about it years and years ago. I don't know whether they put it up in June, or opened it up, but I used to hear it mentioned. Now a fellow takes you around the corner and says what he has is good, because he made it himself, last night.

And the June-bugs will soon be with us, buzzing around and getting smote at and stomped on and squashed, without seeming to mind it. A June-bug appears to be half-sister to a grasshopper—a dandy on distance, but a plumb fool on direction. It just doesn't seem to give a darn.

Yes, June is a great month, for all these things come together, and especially when they do. Just let a June bridegroom get full of juniper wine and then sit down on a June-bug, and it makes the merry month of May look like a lodge funeral—and sometimes that's what it ends up with.

But, after all, one month is about as good as another, for bills come on the first of all of them. December may have its cold, but it also has Dad and his cotton whiskers; and August has its heat, but it also has its circus, about the only legal way there is for a man to see a lot of strange animals any more.

Yes, the whole year is full of joy and pleasure, especially if a man never lets anything but Nye Tools get into his shop. They cut so much easier, last so much longer, and give so much better satisfaction, that they are the only pipe-cutting tools that an oil man ever ought to have around, June or anytime.

Yours as usual,
HARRY G. NYE

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HARRY G. NYE
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Universal Shaft operating stocks up to 12 inches.

MANUFACTURED BY

THE NYE TOOL & MACHINE WORKS
4120-4130 Fullerton Avenue
CHICAGO, ILL.

You Can Get This Strong
STEEL MOUNTING

WITH Vogt *MOTOR TRUCK* Tanks

The Vogt steel mounting consists of a series of formed and welded steel bolsters supported by two horizontal heavy gauge steel tubes integral with the bolsters. The bolsters are arranged to allow maximum wheel clearance and are adaptable to any shape or size of tank. The two tubes are incorporated in the design to equally distribute the load as well as to carry the compartment unloading hose. Extra containers or the unsightly appearance of carrying the hose elsewhere are eliminated.

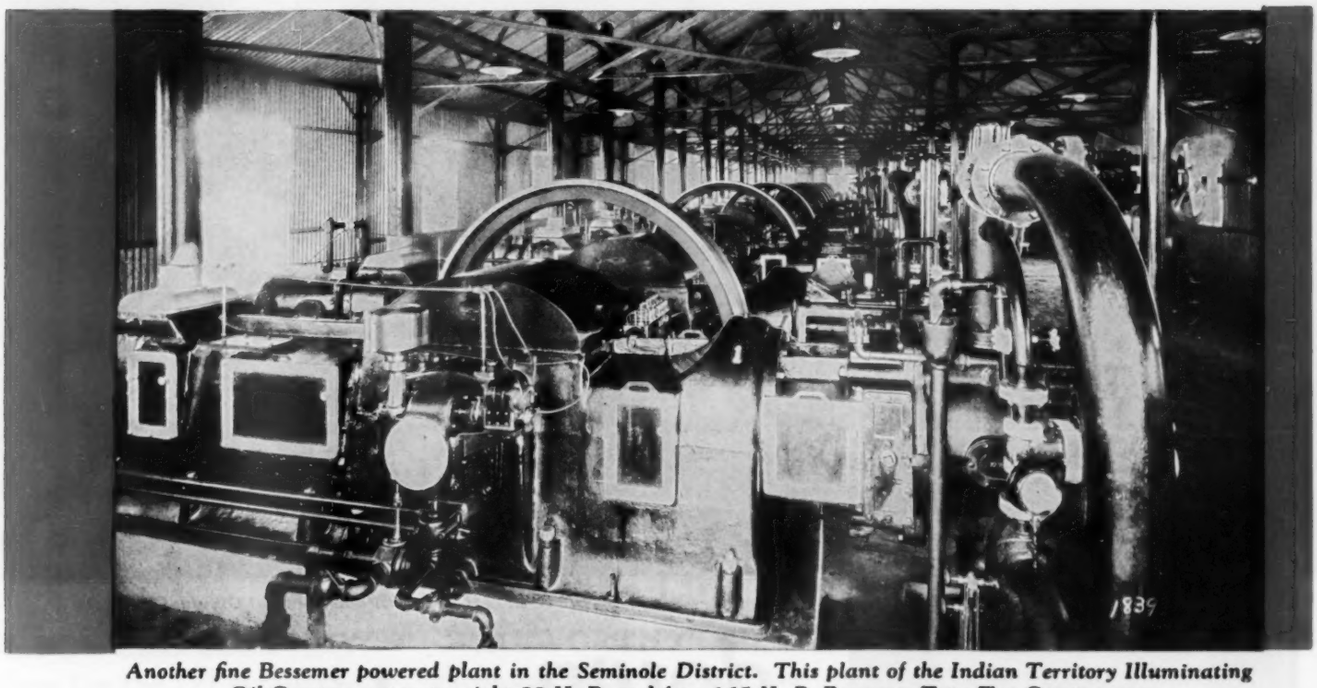
Write for Bulletin MT-5

HENRY VOGT MACHINE CO.
(Incorporated)
LOUISVILLE, KY.

Branch Offices: New York Chicago Philadelphia Cleveland Dallas

Manufacturers of: OIL REFINERY EQUIPMENT, DROP FORGED STEEL VALVES AND FITTINGS, WATER TUBE AND HORIZONTAL RETURN TUBULAR BOILERS, ICE MAKING AND REFRIGERATING MACHINERY.

PROGRESS..
a reflection of
INTEGRITY



Another fine Bessemer powered plant in the Seminole District. This plant of the Indian Territory Illuminating Oil Company operates eight 80 H. P. and four 165 H. P. Bessemer Type Ten Compressors

FOR more than thirty years Bessemer equipment has borne the stamp of unflagging engineering research and unceasing experimental work. Older equipment has been constantly improved to meet changing conditions and new equipment has been developed to meet new methods. ¶ Now, after three decades of "keeping faith with the oil industry", Bessemer equipment will bear the mark of even more extensive engineering research, and more intensive experimental and development work. The increased facilities, larger experimental and research staff, and greater assets of The Cooper-Bessemer Corporation assure the same progressive development work on a vastly broader scale. ¶ You will still "buy the best when you buy a Bessemer"—only it will be an even better "best".

THE COOPER-BESSEMER CORPORATION

Formerly THE C & G COOPER CO., Mt. Vernon, O. · BESSEMER ENGINE CO., Grove City, Pa.

BESSEMER

On the C. C. M. O. Co.'s Olinda No. 96 at Olinda, Cal.

down down down

—they drilled the world's deepest well

Again Sivyer Castings played an important part in establishing a new world record—where strength, toughness and dependability were most important.

To the unprecedented depth of 8046 ft. Reed Roller Bits drilled a perfect hole — the world's deepest well. Such record breaking dependability is obtained through the use of Sivyer Alloy Steel Castings where strains and wear are most severe. For Sivyer Castings are consistently sound and free from ordinary foundry defects. And the wide range of standard Sivyer Alloys assures the best metal for every job.

SIVYER STEEL

SIVYER STEEL CASTING COMPANY, MILWAUKEE

·OKMULGEE·

OKMULGEE is the center of one of the oldest of Oklahoma's oil producing areas, and the field is made up of numerous pools scattered throughout the county.

The first well was brought in near Morris in Sec. 20-13-14 in 1906 on the Booch farm, and started at 10 bbls. a day from the Booch sand. This sand, found here at 1200 to 1300 feet, later developed wells starting at 3000 bbls. a day, and was one of the Field's most productive areas. The Booch, Morris, Glenn Fields, Lyons-Quinn and Wilcox sands all produced in the Morris area, the oil averaging from 35 to 36.9 deg. The largest well in the pool was drilled in 1907 in Sec. 20-13-14, producing 5000 bbls. the first day from the Morris sand at about 1600 feet.

The Bald Hill Pool, lying northerly from the Morris pool, in Twp. 14 and 15, Ranges 13, 14 & 15, was opened early in 1908 in Sec. 6-14-14, with a 400 bbl. producer at a depth of 1661 ft. In the same year the Dutcher Sand was discovered at 1700 ft. by a well drilled in Sec. 22-15-14. Oil in this pool averaged 42 deg., and production was obtained from the Booch, Salt, Red Fork, Morris, Dutcher, Fields, Lyons-Quinn, Wilcox and Turkey Mountain sands.

The Coalton pool was opened by discovery well in Sec. 22-12-13 in 1907, making 60 bbls. from the Dutcher sand at 1800 ft.

Later wells were developed in the Booch sand good for 15 to 600 bbls. initial production.

Other pools in the Okmulgee Field include the Tiger Flats, opened in 1908; Salt Creek, 1910; Preston, 1909; Brinton, 1915; Bartlett, 1916, and a few others.

J. W. Zimmerman
Local Store Manager
Okmulgee, Okla.

In 1918 the Youngstown Pool was discovered, deeper drilling having found the Wilcox sand in Township 14-11, which sand was later found in other townships and the area soon became one of the busiest in the United States.

Okmulgee area produced in 1919, 11,272,879 bbls.; in 1920, 17,401,316 bbls.; 1921, 11,814,567 bbls. Peak production was reached late in 1920 when it totalled 55,000 bbls. a day.

Present production is around 18,300 bbls. from about 4,600 wells.

NATIONAL TRANSIT PUMP & MACHINE CO.

Pumps and Pipe Line Equipment

WM. POWELL COMPANY
Valves for the Oil Industry

JOSEPH REID GAS ENGINE COMPANY
Two and Four Cycle Gas Engines, Pumping Powers, Refinery Equipment

JOHN A. ROEBLING'S SONS COMPANY
Wire Lines and Welding Wire

ROSSENDALE-REDDAWAY COMPANY
"Camel Hair" and canvas stitched belting

WALWORTH COMPANY
Fittings and Valves for all branches of the oil industry

WHITLOCK CORDAGE COMPANY
Manila Cordage, including Drilling Cables, Bull Ropes, Cat Lines, etc.

AXELSON MACHINE COMPANY
Sucker Rods, Pull Rods, Working Barrels, etc.

DONOVAN BOILER WORKS
Oil Country Boilers and Tanks

BEAUMONT IRON WORKS COMPANY
Dreadnaught Rotary Drilling and Pumping Equipment

FRICK-REID SERVICE RUBBER BELTING
Our Own Specifications

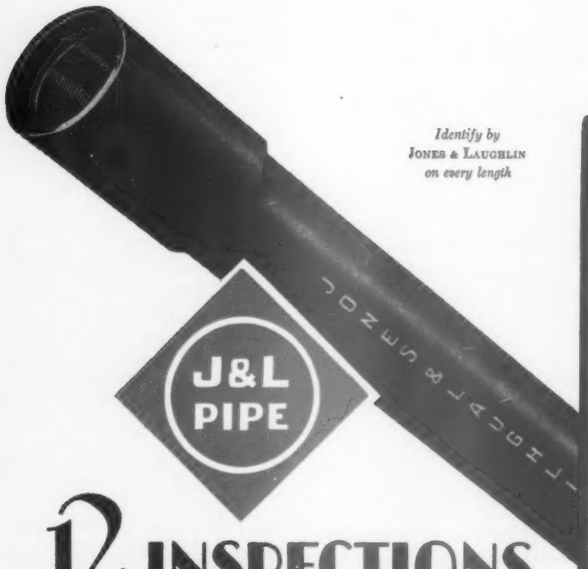
JONES & LAUGHLIN STEEL CORPORATION
Tubular Goods, Seamless and Lapwelded

J. P. RATIGAN
"Sure Grip" Line of Pumping Equipment

FRICK-REID SUPPLY CORPORATION

COVERS THE FIELD WITH WELL MANAGED STORES FROM THE ROCKY MOUNTAINS TO THE ATLANTIC COAST

Pittsburgh . . . . . Tulsa



Identify by JONES & LAUGHLIN *on every length*

12 INSPECTIONS INSURE UNIFORMLY HIGH QUALITY

J & L's adequate resources, ownership control of each process from ore mining to pipe making, nearly 80 years of experience in iron and steel making, and rigid inspection through each step of manufacture, are your guarantees that every length of J & L Seamless Casing you order is as nearly perfect as seamless casing can be made. Beginning with chemical and physical tests of raw materials, iron ore, coke and limestone (from J & L's own mines and quarries), inspection on J & L Seamless continues without interruption until the twelfth and final checking is made as the pipe is loaded for shipment.

In addition to the twelve tests and inspections (listed at right) a milling machine is kept busy constantly machining out samples for pull tests to insure tensile strength safely within requirements of the trade. Drillings are also taken during mill operations to be analyzed for chemical composition, and samples are microphotographed frequently to check grain structure.

Oil men declare: "There's no better Seamless made than J & L."

INSPECTIONS OF J & L SEAMLESS

1 Chemical tests of raw materials made at the mines and quarries, also before charging into blast furnaces.

2 Thorough analysis of pig iron produced by blast furnaces and metallurgical inspections as pig iron is made into steel in open hearth furnaces.

3 Chemical analysis for composition as steel is poured from open hearth furnaces into ingot molds.

4 Ingots rolled into blooms under temperature control.

5 Blooms pickled in strong acid to bring out defects. Inspectors pass blooms only after visible defects have been chipped out with pneumatic chisels.

6 As seamless tubes come from the straightener, inspectors scrutinize both outside and inside surfaces with the aid of specially designed lamps.

7 Ends trimmed; then pipe is inspected for wall thickness and correct outside diameter and roundness.

8 Pipe threads checked with certified gages and second inspection made for flaws, to insure clean cut accurate threads of proper pitch and taper.

9 Couplings as produced in our mills are closely inspected for correct tapping, threads accurately gaged for pitch and taper and checked on specially designed machines for alignment.

10 All items of previous inspections rechecked on testing benches, and stencil marks applied.

11 Each length given hydrostatic pressure test before rust-resisting coating is applied and pipe is delivered to shipping platform.

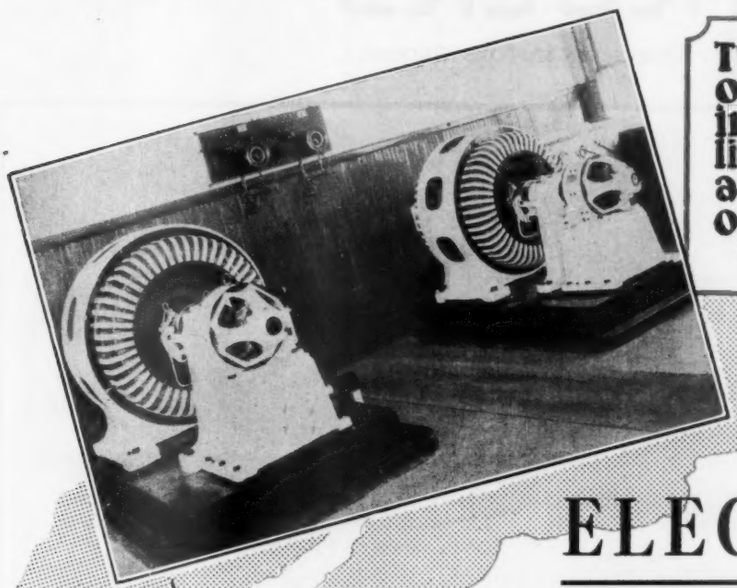
12 Final inspection of each length as it is loaded for shipment.

J&L STEEL

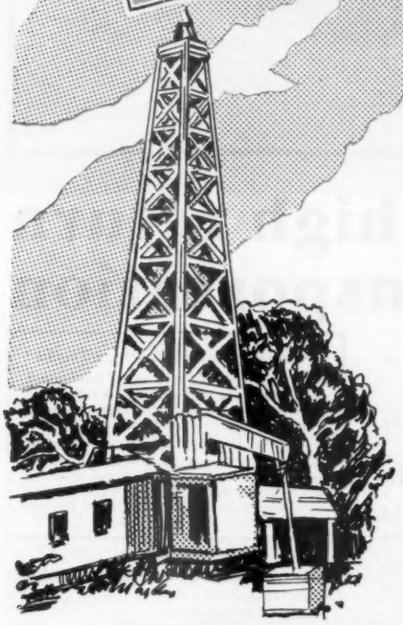
JONES & LAUGHLIN STEEL CORPORATION

Jones & Laughlin Building
PITTSBURGH - - PENNSYLVANIA

SERVING West Texas



Two electric motors operate the pumps in the Illinois pipe line Company's station at Fort Lancaster:- one of ten stations to be electrified



ELECTRICITY

Quickly Proves its ECONOMY and CONVENIENCE

WHEN PRODUCTION MANAGERS have used Electric Power . . . and know for themselves how perfectly adaptable it is to pipe line pumping (as well as every other oil field task) . . . . how much CHEAPER it is than other types of power . . . they have "electrified" wherever it was possible.

The West Texas Utilities Company, with its available capacity of 70,000 horsepower . . . with its 2,000 miles of "high lines" threading 42 West Texas counties . . . with its potential ability to serve half-a-hundred MORE communities . . . is solving the power problem for many of the progressive Production Companies in this territory.

Before YOU Buy New Power Equipment

Let Our Engineers Show You How Quickly Electric Equipment will pay for itself in SAVINGS!

WEST TEXAS UTILITIES COMPANY
In the Land of Opportunity

DODGE BROTHERS TRUCKS

CHRYSLER MOTORS PRODUCT

Paying a high return in fast, reliable transportation on a small outlay

THERE is no guess, no experiment about Dodge Trucks .... For years they have been paying their hundreds of thousands of owners a high return on a small investment .... They have been paying this high return in work done, in time saved and in dollars actually earned.

Right in each fine detail of design and workmanship, built for work and honestly priced, Dodge Trucks are always dependable, always powerful, economical, comfortable, fast and safe.

Go over the complete line with your Dodge Brothers dealer .... He can deliver to you the chassis you need with the body you need, ready to work—and arrange to let it help pay for itself.

Only great volume production makes possible trucks so good at prices so low .... More than a million dollars' worth of Dodge Trucks are sold every week.

Formerly Graham Brothers Trucks

The complete line of Trucks, Buses and Motor Coaches manufactured by Graham Brothers (subsidiary of Dodge Brothers) now take the name of Dodge Brothers.

These Trucks, Buses and Motor Coaches, powered by Dodge Brothers engines and manufactured according to Dodge Brothers standards, are sold, as they always have been sold, by Dodge Brothers Dealers everywhere.

PRICES

MERCHANTS EXPRESS—109" w.b.	$ 545
COMMERCIAL TRUCK—120" w.b.	775
1-TON—130" wheelbase	995
1-TON—140" wheelbase	1065
1½-TON—150" wheelbase	1345
1½-TON—165" wheelbase	1415
2-TON—150" wheelbase	1515
2-TON—165" wheelbase	1585
3-TON—135" wheelbase	1745
3-TON—165" wheelbase	1775
3-TON—185" wheelbase	1845

Chassis f. o. b. Detroit

SOLD BY DODGE BROTHERS DEALERS EVERYWHERE

Not *all* red gasolines are Ethyl

THERE are some motorists who drive up to a filling station and say to the pump man, "Give me some red gas" or "Give me some white gas."

By "red" they mean Ethyl Gasoline —*but not all red gasolines are Ethyl.*

Though Ethyl Gasoline is colored red for identification, its color has nothing whatever to do with its performance. It takes more than dye to make an anti-knock fuel, and the element in Ethyl Gasoline that "knocks out that knock," creates added power and gives high-compression performance is Ethyl fluid, containing tetraethyl lead. This is the anti-knock compound which was developed after years of research to make gasoline a more efficient automobile fuel, and to make the high-compression engine commercially practicable.

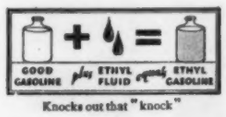
So effective is Ethyl fluid that leading oil companies throughout the United States, Canada and Great Britain are mixing it with good gasoline to form Ethyl Gasoline, a premium fuel that gives you your money's worth.

So just remember that the advantages of Ethyl Gasoline are available only through pumps which display the Ethyl emblem or which bear a notice stating that the fuel contains tetraethyl lead.

Remember too that Ethyl Gasoline makes *any* car run better, whatever its age or type—and whatever its compression ratio. Start riding with Ethyl today.

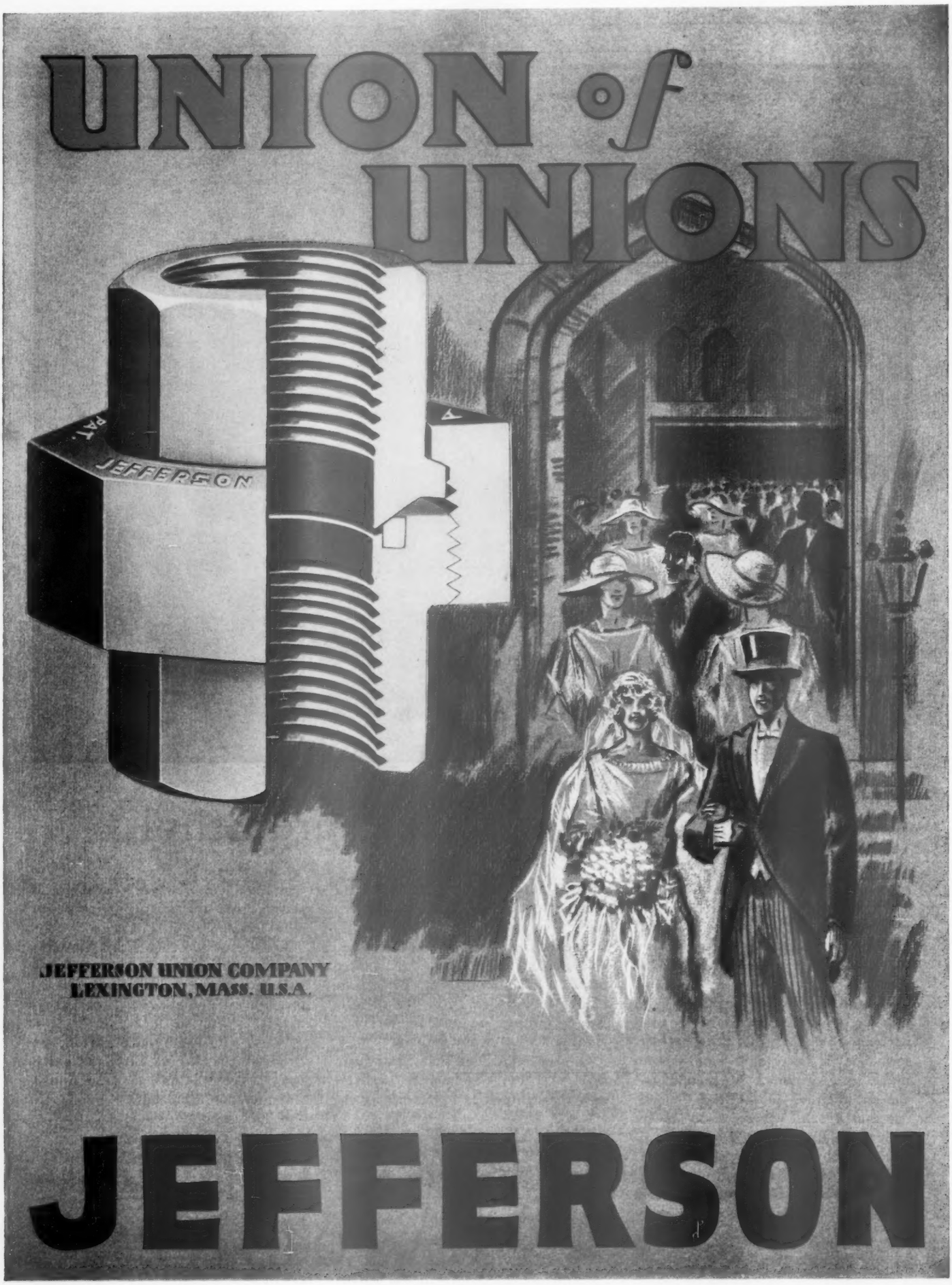
Ethyl Gasoline Corporation, 25 Broadway, New York City; 56 Church Street, Toronto, Can.; 36 Queen Anne's Gate, London, England.

ETHYL GASOLINE

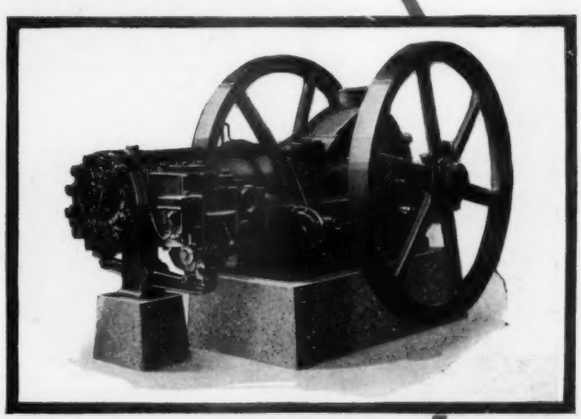


Knocks out that "knock"

© E. G. C., 1929


UNION of UNIONS
PAT.
JEFFERSON
JEFFERSON UNION COMPANY
LEXINGTON, MASS. U.S.A.
JEFFERSON

TICO'S OLD DEPENDABILITY IN A NEW ENGINE



4 CYCLE 25-90 HORSEPOWER

FOR many years the performance of Tico 2-cycle Gas Engines has built a sterling reputation in the field—

Now Tico offers a new engine—the Tico 4-Cycle—an engine also destined to win your preference for its design and operative characteristics.

TIW-2

TITUSVILLE OIL COUNTRY MACHINERY
BUILT WITH RESERVE RUGGEDNESS

UNIQUE FEATURES

Extra Long Stroke—Easy Hand or Air Starting—All reciprocating parts and governor enclosed oil tight. Patented Dash Pot insures Absolute Valve Alignment. Two-Piece Cylinder Head

THE TITUSVILLE IRON WORKS CO.
TITUSVILLE, PA.

For Export
The Continental Well Supply Co.
72-76 Trinity Court, New York City, N. Y.

Distributors
The Continental Supply Co.

For California
California Machinery Supply Co.
2449-55 Hunter St., Los Angeles, Calif.

TICO GAS ENGINES

..... Mechanical
APPLICATION of PIPE COATINGS

A Hill, Hubbell & Company engineering triumph ..

Some months ago Hill, Hubbell & Company announced to the pipe world a new and unusually effective method of applying protective coatings. This modernized practice has reduced to a reality the long-held opinion that the most economical, precise and efficient application of both protective coatings and protective wrappings could and should take place at the pipe mills.

The advantages that have become apparent since the introduction of this method have surpassed all expectations. The complete freedom of dependence on favorable weather conditions, and the absolute control that is possible in the matter of temperatures, thickness of coating, exactness of wrapping and daily production has definitely stamped this departure in application as a mighty advance in the protection of line pipe.

The mechanical coating and wrapping of pipe has already passed through the experimental stage and it is now certain that it is the most efficient and economical method of permanently protecting pipe.

Since the first shipment of pipe protected by this method was made in August, 1928, over two thousand miles of various sizes have been coated and wrapped, and as this advertisement is issued approximately two thousand miles are being protected at our plants. Two of the largest projects in the oil industry during recent months adopted this form of protection; both of these operations give testimony to the acceptance of this form of protection by experienced companies.

Specifications covering a wide scope of combinations of materials are now available and information may be obtained by writing to our nearest office.

HILL, HUBBELL & COMPANY

Division

General Paint Corporation

Manufacturers of Highest Grade Oil Industry Paints and Pipe Line Coatings

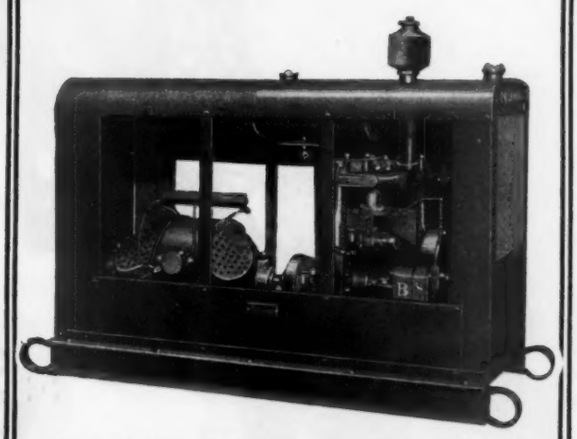
General Offices: SAN FRANCISCO

Mid-Continent Factory: TULSA

Offices:

SAN FRANCISCO - TULSA - NEW YORK - CHICAGO - LOS ANGELES - HOUSTON - PORTLAND - SEATTLE - SPOKANE

LIGHT
PLENTY OF IT



Novo Flud-Lite Lighting Unit used by the J. M. Brennan Drilling Company in drilling two wells to a depth of 3800 feet.

And Power Enough to Run a 2½-inch—3-inch Pressure Pump Besides

"In addition to the twenty lights we carried on this plant, we ran a 2½ in.—3-in. pressure pump —and at no time did the engine seem overcrowded."—J. M. Brennan Drilling Company.

Novo Flud-Lite Lighting Units are built with surplus power to operate grinders, blowers, air compressors and other auxiliary machinery in addition to the standard Westinghouse Generator.

Flickering and burned out bulb dangers are eliminated—for the engine speed is automatically controlled within 5 per cent—and voltage is held to a variation of not more than three volts.

Standard Novo Timken Roller Bearing Engines assure an unbelievable freedom from trouble, repairs and replacements.

The engine, generator, enclosed terminal boxes, quick break switch and fused terminals for the line wires — are all located inside the steel lock up housing.

And one gallon of gasoline is all that's needed to generate 1000 Watts for eight hours.

Capacities range from 1¾ to 5KW.

NOVO ENGINE COMPANY, 240 Porter St., Lansing, Michigan
Clarence E. Bement, Vice-Pres. and Gen. Mgr.

NOVO
Flud-Lite Lighting Units

Sold and Serviced by National Supply Company

NOVO ENGINE COMPANY,
240 Porter St., Lansing, Michigan
Please send me the special folder and prices on the new Novo Flud-Lite Lighting Units.

Name .....

Company .....

Address .....

City ..... State .....

Final Quality Depends First, on the Crude

OVER 11,000 producing wells feed the pipe lines leading to Pure Oil's large, modern refineries. Some of this crude is rich in gasoline content; some is valuable for making high grade motor oil; while some is best suited as a base for industrial oils or greases. But, because Pure Oil controls this vast production, it has a sure supply from which its experts select the cream of the crudes for refining each product.

Every step in the producing, refining, and marketing of Pure Oil products is efficiently handled by Pure's own organization. That is why Pure Oil products are uniformly good . . . always delivered on the dot!

Tune in on the PURE OIL BAND
Conducted by Edwin Franko Goldman
Every Tuesday Night over WJZ and chain

THE PURE OIL COMPANY
U. S. A.

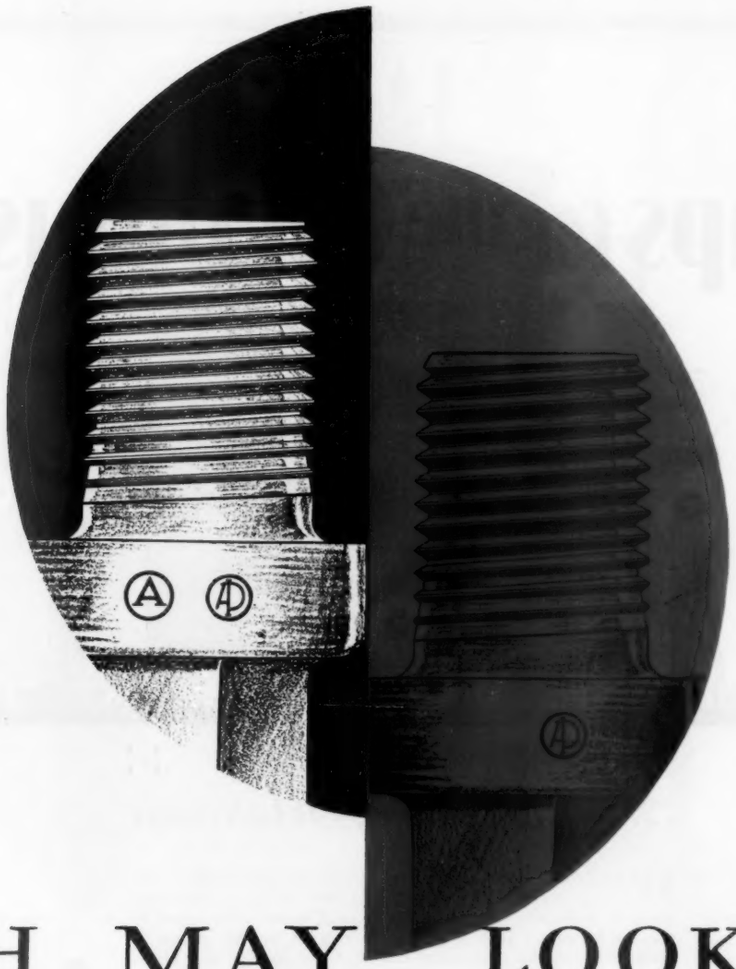
One of the major producing, refining and marketing companies—yet strictly independent

REFINERIES:

Marcus Hook, Pa.
Cabin Creek Jct., W. Va.
Heath, Ohio
Ardmore, Okla.
Muskogee, Okla.
Smith's Bluff, Texas

SALES OFFICES:

Chicago
New York
Minneapolis
Philadelphia
Pittsburgh
Columbus, O.
Charleston, W.Va.
Norfolk, Va.
Atlanta, Ga.
Tampa, Fla.
Miami, Fla.
Pensacola, Fla.
Tulsa, Okla.
Beaumont, Tex.



BOTH MAY LOOK ALIKE

BUT ONE CARRIES INSURANCE OF QUALITY

BECAUSE IT IS *AXELSON*-MADE

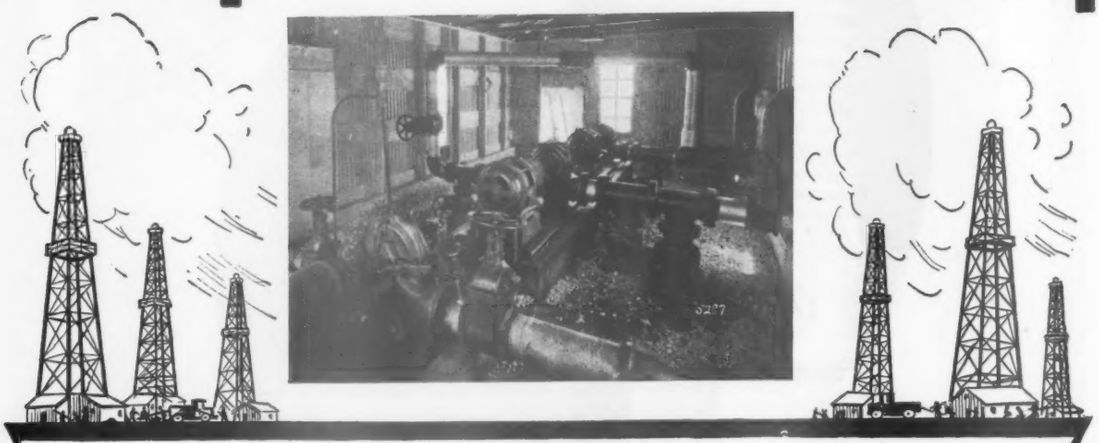
THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY

Copyright 1930 Axelson Machine Company Los Angeles

Axelson Machine Company
P. O. Box 337, Los Angeles
Tulsa St. Louis
New York City, 30 Church St.
Mid-Continent and Eastern Distributors—
Frick-Reid Supply Corporation

AXELSON SUCKER RODS

Pumps for the Oil Industry



...in Earlsboro, Oklahoma

DEPENDABILITY in pumping equipment is as much a factor to the efficient operation of the Amerada Petroleum plant in Earlsboro, Oklahoma, as it is in every other plant in the oil industry. That is why a battery of Goulds pumps is taking care of the requirements of this and many other plants in the oil fields.

Goulds has for years been manufacturing pumping equipment for all branches of the oil industry.

For pipe line, refinery, natural gasoline plant, wax plant or for gathering service there is a Goulds pump. In fact, there is a Goulds pump for every requirement encountered in the oil industry. Our engineers are well versed in your problems. Give them an opportunity of offering a recommendation on that next pumping job.

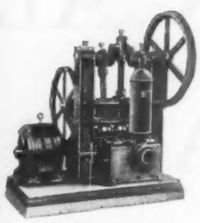


Figure 1696
Goulds Single-Acting Triplex Pump

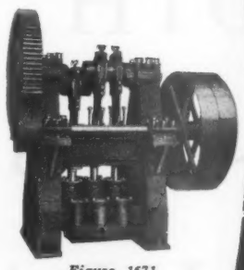


Figure 1671
Goulds Single-Acting Triplex High Pressure Pump

GOULDS PUMPS, Inc., Seneca Falls. N. Y.

Houston, Texas
1902 Second National Bank Bldg.

Tulsa, Okla.
705 Kennedy Bldg.

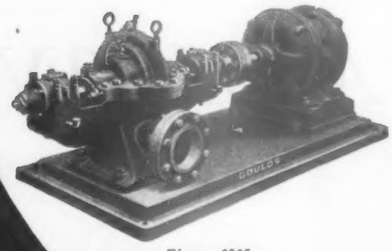


Figure 3065
Single Stage, Double Suction Centrifugal Pump

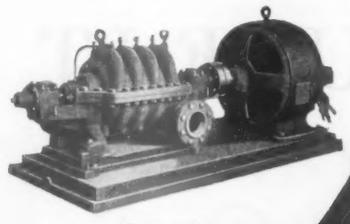
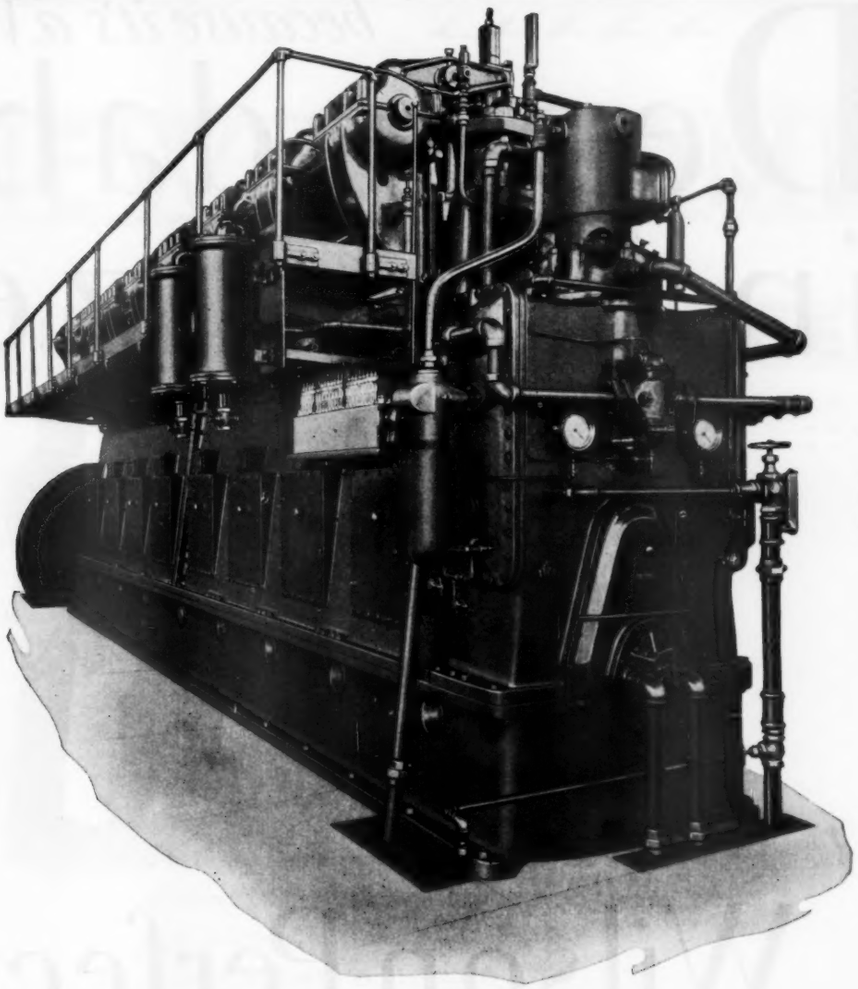


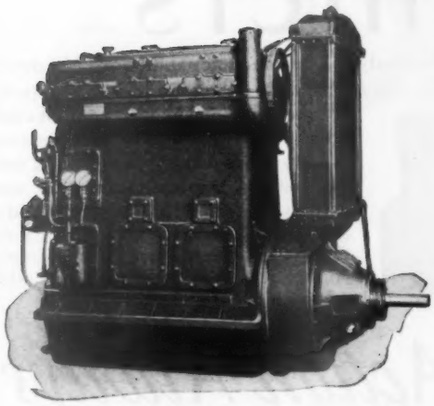
Figure 3330
Multi-Stage Single Suction Centrifugal Pump

GOULDS PUMPS



The engine illustrated at the left is a Fulton-Diesel, 8-cylinder, Type K, rated at 1600 B.H.P.

DEPENDABLE DIESEL POWER



Fulton-Diesel Type L Engine for Mobile Duty. Built with ratings of from 50 to 320 B.H.P.

THE oil industry demands dependable power every hour of the year. One of the reasons for Fulton Diesels remarkable success in this type of service is that they not only carry full load and more, as long as demanded, but do it with startling economy.

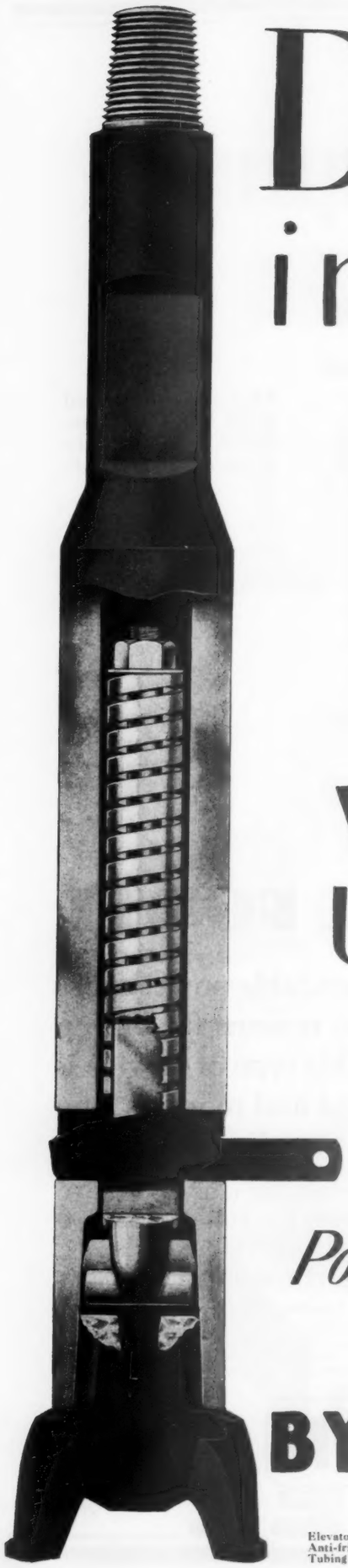
Manufacturers of Fulton-Diesel Engines, 50 to 2000 B.H.P., and Fulton-Foos Heavy-Duty Gas Engines, 50 to 500 B.H.P. Write for complete literature.

FULTON IRON WORKS CO., ST. LOUIS, U.S.A.

Successful Engine Builders for Over Seventy-five Years

PLANTS: St. Louis, and Springfield, Ohio
BRANCH OFFICES AND AGENTS: New York · Chicago · New Orleans · Springfield, Ohio · Tulsa · Dallas · Houston · Boston Pittsburgh · El Paso · Mobile · Salt Lake City · Wichita, Kan. · Havana

FULTON DIESEL



because it's a Wilson

Dependable in ALL sizes

Wilson Perfection Underreamers

Being of simplest construction, Wilson Underreamers in the *smallest* sizes are as efficient in operation as the largest. Nothing to clog, no fragile parts to break, no pieces to drop in the hole and cause a fishing job. This is the Underreamer that was adopted as standard equipment by the largest companies years ago. Its basic design has never required change.

The body is one-piece construction. No dovetails, no sub, nothing to come loose. The powerful cutters are braced against each other. They expand to full diameter—never part way. When pulling out, the cutters trip automatically and collapse completely under the body. Never necessary to pull out of hole to reset. Every part is extremely rugged. BJ heat treatment has added even greater endurance.

Positive, Automatic Action Always

BYRON JACKSON CO.
OIL TOOL DIVISION

2150 E. Slauson Avenue, Los Angeles, California

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BYRON JACKSON CO.

Products:

BJ TOOLS and PUMPS—WILSON TOOLS—DUNN TOOLS

Elevators, Tongs, Disc Bits, BJ-Hopkins Anti-friction Tool Joints and Collars, Hooks, Tubing Catchers, Tubing Bleeders, Tubing Stops, Floor Circle Braces, Underreamers, Rotary Drive Bushings, Slush Pump Pistons and Valves, Circulating Heads, Subs, Cones, Side Reamers, Pump Liner Pullers, Valve Seat Pullers, Flow Nipples, Centrifugal Pumps for all uses.

NEW CUSTOMERS

BUILD UP "EXTRA DIVIDENDS"

...DRIVE FOR MORE

"Old customers," says a prominent executive, "are the bread and butter of our business. But it's the new customers that build up extra dividends." Phillips Motor Fuels have a pleasing habit of combining "bread and butter" with "extra dividends" for the stations that sell them. They get business and hold it —because they consistently make good. Back of them is a vast, independent organization that believes in—and practices—fair treatment of its trade. . . . . .

Phillips 66

2824 Producing Wells; 2122 Tank Cars; 48 Gasoline Plants; over 5000 employees insure a permanent supply of Phillips superior motor fuels. These include Phillips 66, Phillips Benzo-Gas, Phillips straight run refinery gasoline 60-62 and Phillips wax free motor oils. The vast experience of the research department of the company is offered to jobbers and refiners on any problem of Controlled Volatility. . . . . .

Phillips Petroleum Company

Bartlesville, Oklahoma

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NATURAL GASOLINE FOR CONTROLLED VOLATILITY

25 Years
. . . or an afternoon

BEAR this in mind when you are looking toward motor truck purchase and want the facts before you: Any Harvester branch or truck dealer will demonstrate an International for you at any time, right in your everyday work.

Whatever the nature of your hauling and your loads, we will put at your disposal an International of the size you need and let you compare its all-around performance with anything you are doing now or want to do.

Take that as the evidence of an *afternoon*, or a day or two, if longer time may be necessary. And take with it the evidence of the *twenty-five years* that the Harvester Company has been building trucks to do a truck's work as it should be done.

You owe it to your business to know International trucks. You'll find in these trucks the speed and stamina that cut operating costs right down to where they show a strong profit. You'll find appearance, reliability, performance, service facilities . . . everything you expect, and more.

Accept our invitation to *prove* this product of 25 years of progress in truck manufacture. Visit the nearest International Truck branch or dealer. In the meantime write for literature on trucks for your business.

INTERNATIONAL HARVESTER COMPANY
606 So. Michigan Ave. of America (*Incorporated*) Chicago, Illinois

THE INTERNATIONAL LINE consists of a variety of models of different size, capacity, wheelbase, and power, including the Special Delivery, ¾-tons; the Six-Speed Special, 1-ton; 4 and 6-cylinder Speed trucks for 1¼, 1½, and 2-ton loads; and Heavy-Duty trucks, double reduction and chain drive, for 2½, 3½ and 5-ton loads. SERVICE . . . 172 company-owned branches in the United States and Canada.

INTERNATIONAL

Here's another good reason for taking your automotive problems to International Harvester. See the McCormick-Deering Industrial Tractor (ideal mobile power for hundreds of jobs) when you visit the International Truck branch or dealer.

INTERNATIONAL TRUCKS

Three stages in the preparation of a valve for Gould hot oil pump.

Left -Undercut. *Center*—Stellite applied. *Right*—Finish ground ready to use.

Stellited Hot Oil Valves Last *Six Times* as Long

AT the Crew Levick Company's Pettys Island refinery oil passes through Gould's Hot Oil Pumps at 850 deg. F. These pumps are equipped with three inch ball valves, which open and close an estimated 1,200,000 times per month. Stellited valves for these pumps average a full year's continuous run. Special steel valves formerly used ran two months at the best.

The longevity of Haynes Stellite under this severe service, its stubborn resistance to wear, is easily explained by the inherent properties of the metal. Haynes Stellite is red hard. It is unaffected by temperature up to 1800 deg. F. It is tougher at red heat than when cold. At any temperature it resists wear better than any other metal.

Throughout industry, operators are taking advantage of Haynes Stellite to add three to five and more times longer life to wearing parts. The Haynes Stellite representative will gladly show you where and how to use it. Ask him to call.

HAYNES STELLITE COMPANY

Unit of Union Carbide UCC *and Carbon Corporation*

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Chicago—1949 Peoples Gas Bldg.
Detroit—4-240 Gen'l Motors Bldg.
Los Angeles—1310 Santee Street
San Francisco—114 Sansome St.
Cleveland—628 Keith Bldg.
Houston 6119 Harrisburg Bldg.
New York—30 East 42nd Street
Tulsa—Exchange National Bank Bldg.

General Offices—Kokomo, Indiana

Ask your nearest Haynes Stellite District Sales Office for the latest booklets on Stelliting.

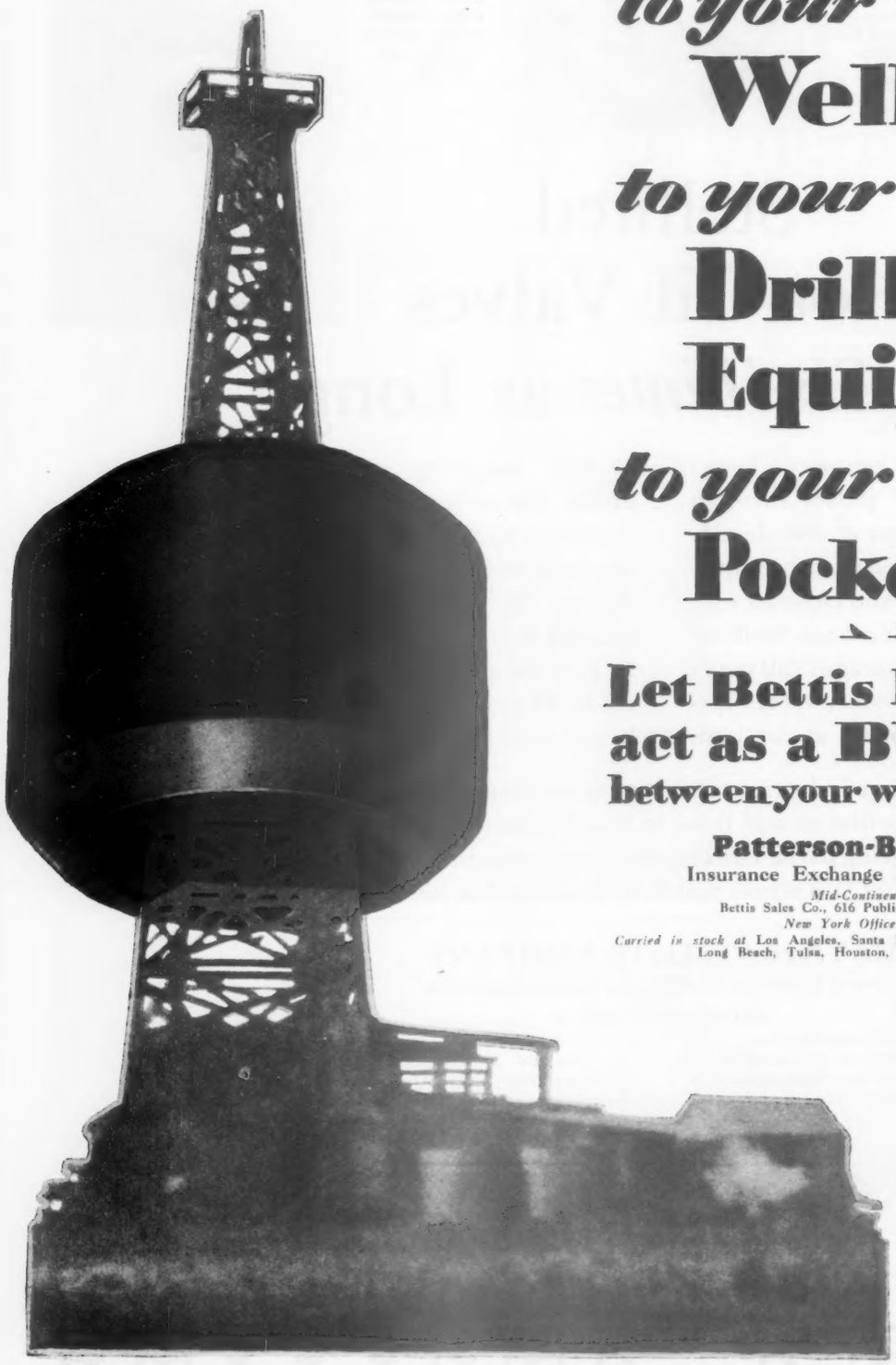
Stelliting with

Haynes Stellite welding rod is also available from any of the 28 District Sales Offices of Oxweld Acetylene Company.

HAYNES STELLITE

Complete protection

to your
Well
to your
Drilling Equipment
to your
Pocketbook



Let Bettis Protectors act as a BUMPER between your well and trouble

Patterson-Ballagh Corp.
Insurance Exchange Building, Los Angeles
Mid-Continent Distributors:
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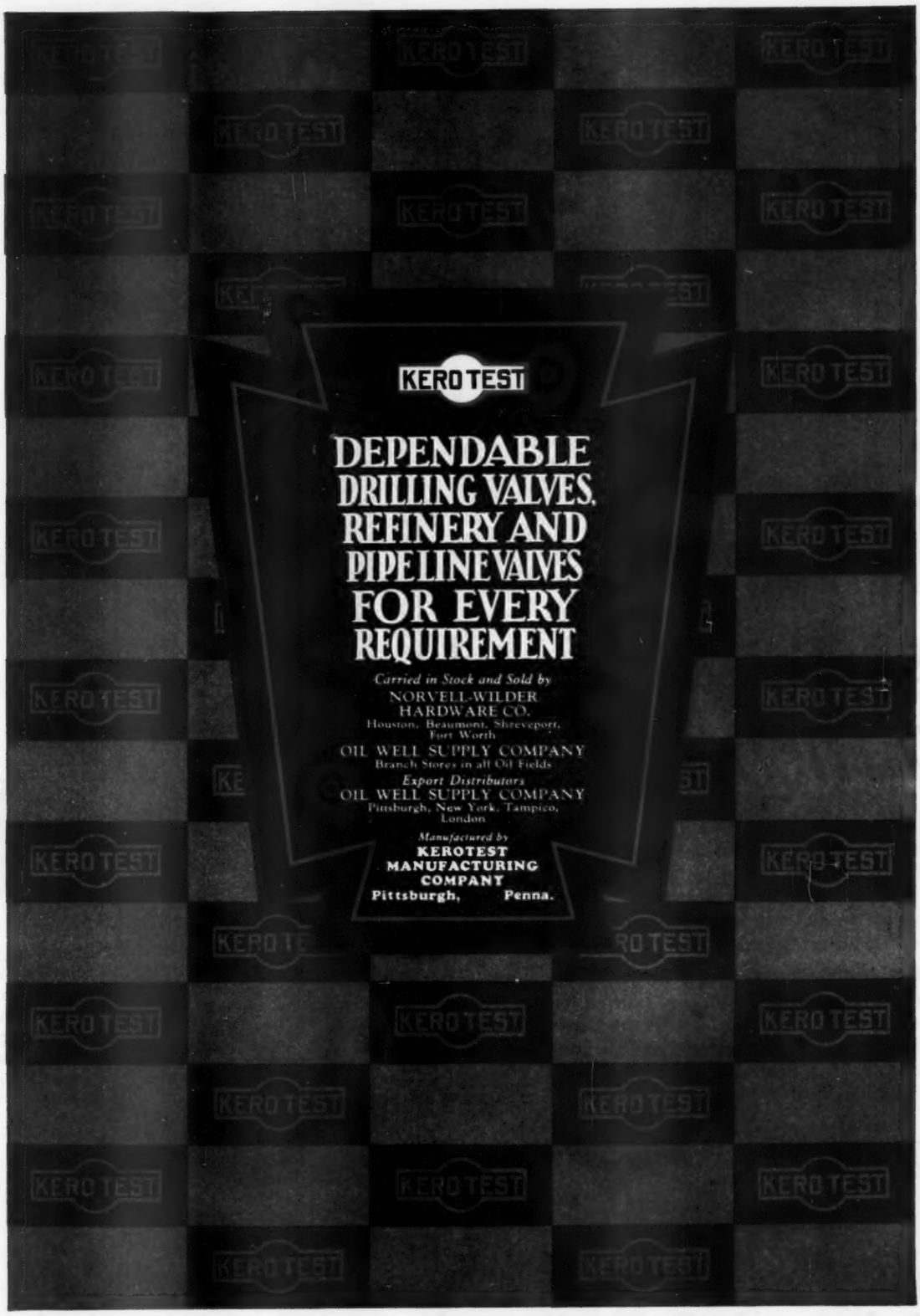
New York Office: 39 Cortlandt St.
Carried in stock at Los Angeles, Santa Fe Springs, Ventura, Bakersfield, Coalinga, Long Beach, Tulsa, Houston, Wink, Texas, New York City.

Save Your
casing
drill pipe
tool joints
collars
wire lines
brake bands
derrick
drilling equipment
fishing jobs
drilling time
pumping costs (later)
flush production

Bettis Protectors
No seams › No hinges › No metal added to hole

"Best bet yet!"


KERO TEST
DEPENDABLE DRILLING VALVES, REFINERY AND PIPE LINE VALVES FOR EVERY REQUIREMENT
Carried in Stock and Sold by
NORVELL-WILDER HARDWARE CO.
Houston, Beaumont, Shreveport, Fort Worth
OIL WELL SUPPLY COMPANY
Branch Stores in all Oil Fields
Export Distributors
OIL WELL SUPPLY COMPANY
Pittsburgh, New York, Tampico, London
Manufactured by
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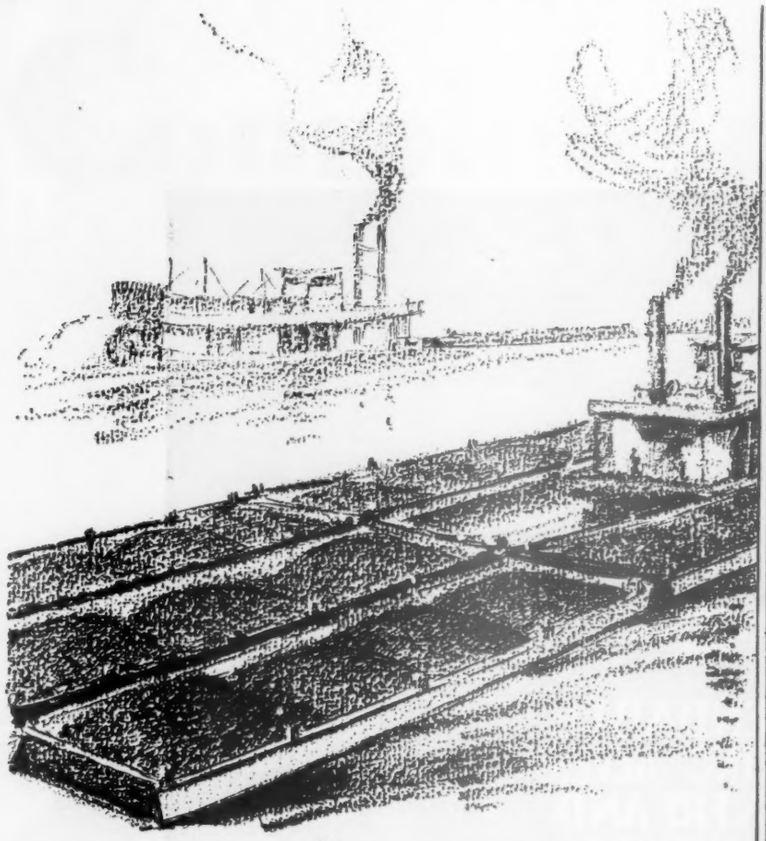
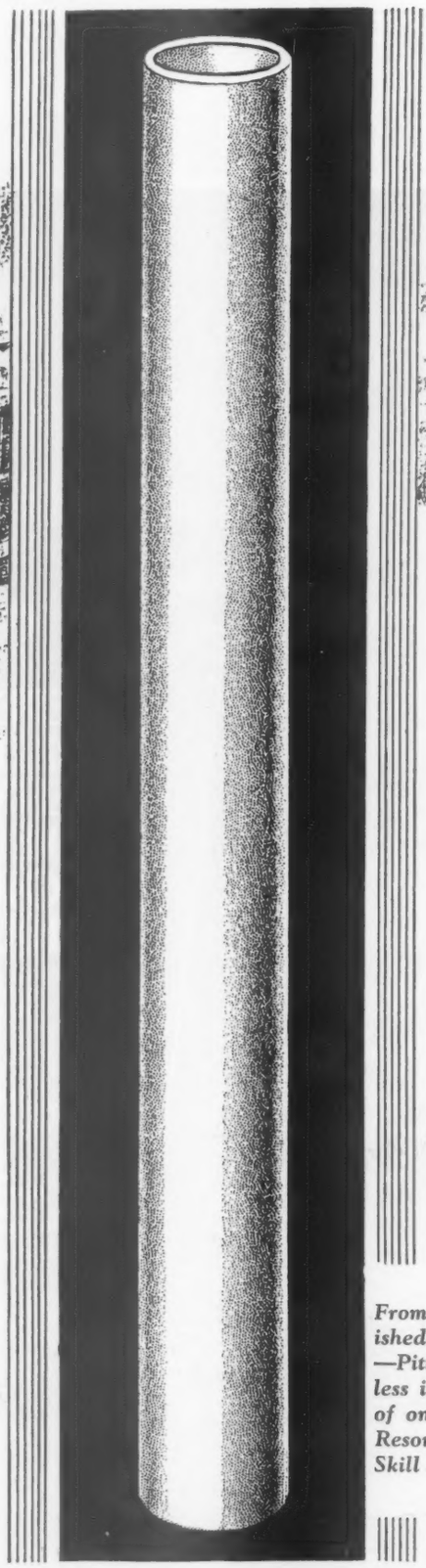




First the ORE *and then* FUEL!

Selected ore from company mines—the first step—*then the fuel*—just the right fuel and an unfailing source of supply, assured by company owned mines, coke plants and transportation facilities—that's the second important step in the perfection of Pittsburgh Seamless.

Twenty-five years devoted exclusively to the development and manufacture of *seamless pipe and tubing*, together with the facilities covering every step in the manufacturing process, from the ore in the ground to the pipe in shipment—these are the factors that enable us to *assure* perfection in Pittsburgh Seamless Tubular Products.

Pittsburgh Steel Products Co.
Division of
Pittsburgh Steel Co.

Pittsburgh New York Houston Chicago St. Louis Detroit Tulsa

Pittsburgh Seamless

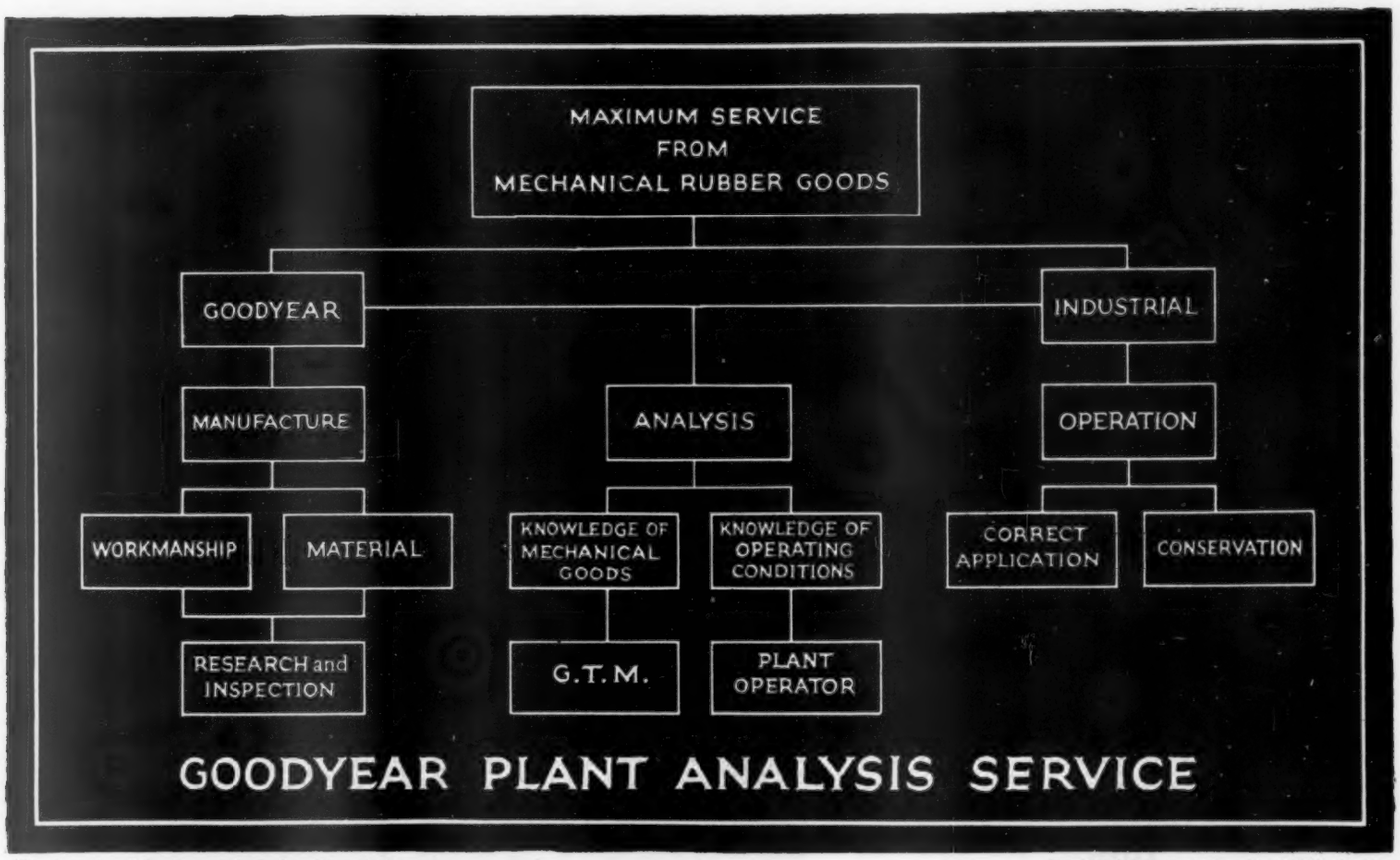
Largest Manufacturers of Seamless Steel Pipe and Tubing Exclusively

From Ore to Finished Pipe or Tube —Pittsburgh Seamless is the product of one Company's Resources and Skill . . . .

Casing
Oil Well Tubing
Drill Pipe
Line Pipe

Sizes ½″ to 14″ O.D., *Lengths up to 45 feet*, depending on Size and Wall Thickness.

2906



This charts the orderly relation of the Goodyear Plant Analysis Plan for maximum service from mechanical rubber goods

Copyright 1929, by The Goodyear Tire & Rubber Co., Inc.

The Plant Analysis Plan—and the G. T. M.

This chart is valuable to every man who has to deal with belting, hose or packing problems. It shows the principal factors in the Goodyear Plant Analysis Plan, and makes clear the part that is played in more efficient, economical plant equipment by the G. T. M.—Goodyear Technical Man.

You know the idea behind the Goodyear Analysis Service. It is simply this, that you are bound to get more work and better work, done more efficiently and more economically, from the *right* mechanical rubber goods, specified to the job. How the *right* product is found by analysis is shown on this chart.

Here you see the G. T. M. and your plant operator, each applying his special experience and knowledge to the problem in hand, whether it be a single drive or an entire plant equipment. They make the analysis together.

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The OIL and GAS JOURNAL

PRODUCING REFINING ENGINEERING MARKETING

VOL. 28. NO. 5. TULSA, OKLAHOMA, JUNE 20, 1929

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California Controls Crude Situation

Highest daily average estimated total production in 1928, week ended Dec. 29, 2,585,844 bbls. Lowest in 1928, May 19, 2,338,241 bbls.

Further Gain Expected There. To Make Conservation Law Effective August 18. Watching Oklahoma City Pool

By Andrew M. Rowley

Highest daily average estimated light oil production in 1928, week ended Dec. 29, 2,158,134 bbls. Lowest in 1928, Mar. 3, 1,927,713 bbls.

A 17,000-barrel increase in production in California last week was mainly responsible for the establishment of a new high daily average record in crude oil output for the United States. Production in the Mid-Continent area remained stationary, the decline in Oklahoma being offset by gains in West Texas and the Texas Panhandle.

Of paramount importance to the industry as a whole is the arrangement to make effective August 18 the provisions of the recently enacted natural gas conservation law in California. Operators there will be notified that any waste of natural gas, as defined by the law, on or after August 18 will result in action being taken by state officials to enjoin operators of properties on which such waste occurs from operating these properties. Of equal importance is the agreement understood to have been reached whereby purchasing companies will refuse to take the oil from any properties so enjoined by state action.

It seems entirely probable production in California will continue to show increases until the gas conservation law is made operative. But, if the state officials succeed in enforcing that law and preventing waste of natural gas, the biggest step towards conservation and stabilization of the industry will have been taken.

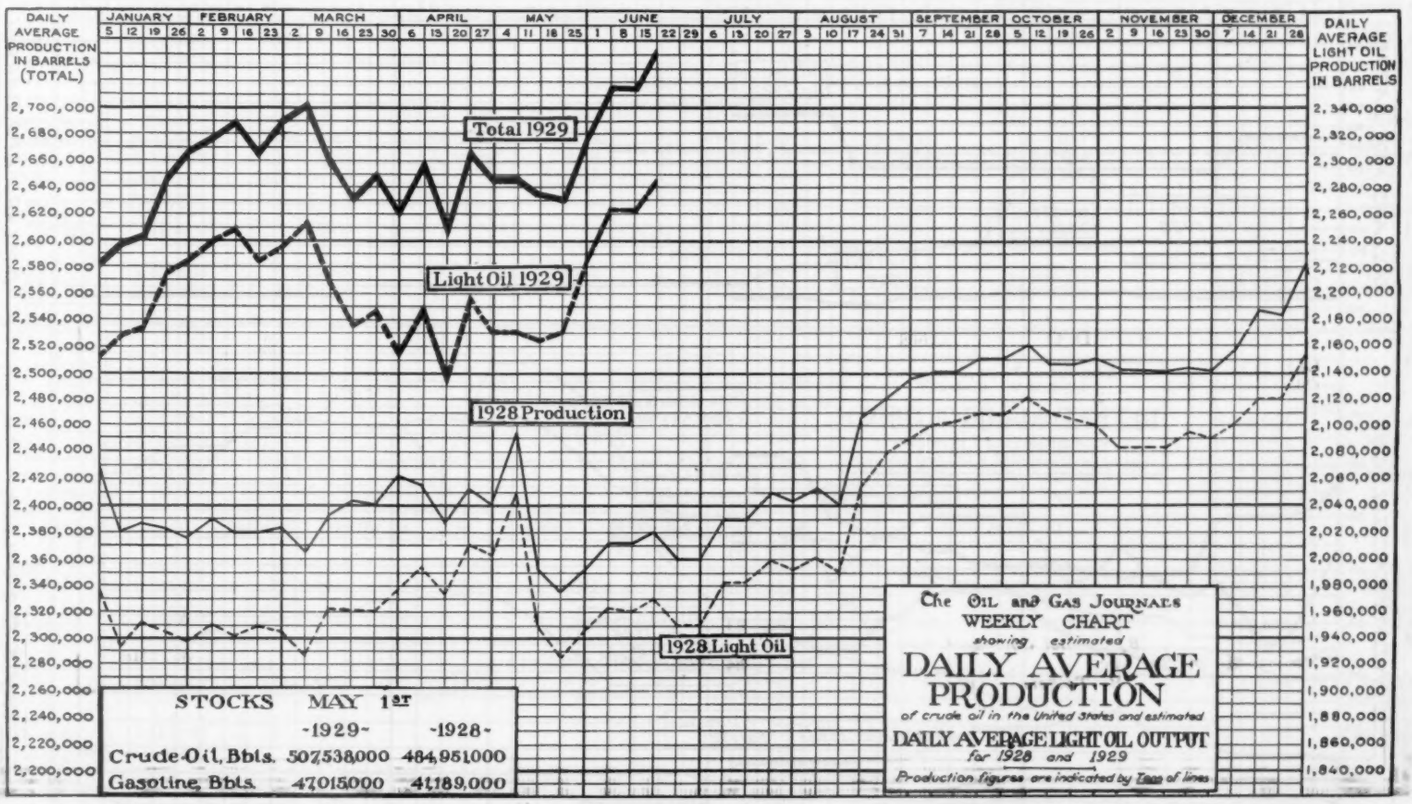
Interest in the Mid-Continent area centers around drilling operations in the Oklahoma City Pool in Oklahoma. There are 14 tests there drilling below 6,000 feet with about four of them due for completion within the next two weeks. Much depends upon the showings made by the wells in this area. The importance of the operations may be gauged from the fact there is a general belief a contemplated upward revision of the crude oil price schedule is being held in abeyance until it is known what may be expected from the Oklahoma City Pool. The fact most of the tests now drilling have found a large quantity of gas in the upper Siliceous lime is regarded as an especially good indication of oil production being found.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended June 15, and a comparison with the previous week follows:

	June 15		June 8	
	Light	Heavy	Light	Heavy
Oklahoma—				
Tonkawa	10,040	.....	10,200	.....
Burbank	19,775	.....	20,140	.....
Other Osage Fields	25,585	.....	25,720	.....
St. Louis-Pearson	88,645	.....	89,855	.....
Cushing and Shamrock	19,135	.....	19,255	.....
Bristow	19,280	.....	19,320	.....
Allen	23,035	.....	24,345	.....
Seminole	282,985	.....	290,250	.....
Northern Miscellaneous	131,170	.....	129,580	.....
Southern Fields	54,585	.....	54,770	.....
Total Oklahoma	674,235	.....	683,435	.....
West Texas—				
Hendricks	143,888	.....	142,519	.....
Yates	105,000	.....	101,662	.....
Remainder	121,218	.....	122,037	.....
Total West Texas	370,106	.....	366,218	.....
North Louisiana	30,755	5,980	29,110	5,810
Arkansas	21,405	48,560	22,210	48,680
North Central Texas	135,928	.....	136,103	.....
Texas Panhandle	86,405	.....	82,615	.....
East Central Texas	19,365	.....	19,586	.....
Kansas	120,710	.....	119,230	.....
Total Mid-Continent Area	1,458,909	54,540	1,458,507	54,490
Gulf Coast	.....	152,418	.....	148,106
Southwest Texas	.....	76,874	.....	77,942
Eastern	116,000	.....	115,500	.....
Rocky Mountain Area	73,945	.....	69,497	.....
California—				
Santa Fe Springs	219,500	.....	214,500	.....
Long Beach	173,000	.....	172,000	.....
Torrance	2,500	10,000	2,500	10,000
Huntington Beach	42,000	.....	42,000	.....
Elwood	27,000	.....	27,500	.....
Inglewood	13,000	9,500	13,000	9,500
Ventura Avenue	60,500	.....	56,000	.....
Seal Beach	43,500	.....	41,500	.....
Remainder of State	58,000	152,000	52,000	153,000
Total California	639,000	171,500	621,000	172,500
Total United States	2,287,854	455,332	2,264,504	453,038
Grand Total		2,743,186		2,717,542

Total Increase, 25,644 Bbls.; Light Oil Increase, 23,350 Bbls.



Wide Margin Exists in Gasoline Prices

Low Priced North Texas Material Remains Problem. Cylinder Stock Prices Refuse To Be Influenced by Lower Eastern Market

By W. T. Ziegenhain

Prices in the Oklahoma gasoline market extended over a wide range as buyers stressed the fact purchases had been made on the open market from three-quarter to 1 cent below that quoted by the larger refiners, while the refiners in turn maintained an optimistic view of the future. They believe the generally favorable weather throughout the central states will soon cause a heavy withdrawal of the stocks built up by jobbers a month ago and these jobbers will be forced into the market in a repetition of conditions existing at the close of the summer season last year. Another factor tending to hold prices at their present level among the larger refiners, despite the lower prices quoted by a few others, is the general anticipation of another crude advance. Kerosene has weathered another dull week with no willingness on the part of refiners holding large stocks to shade prices in the hopes of moving it. Some effort was made to move it through export channels but Gulf Coast competition turned away what little business existed.

Natural gasoline also passed through a rather quiet week. An effort on the part of one manufacturer to stabilize the market by purchasing all excess material at 7½ cents has proved successful, but there is little hope of any material advance in the immediate future. Refiners are carrying a large margin of stocks of both their production and natural gasoline and despite the attractive differential existing between the U. S. Motor price and the Grade AA natural gasoline price, they are not buying more than their bare needs. They are still obligated to store some of their production as it exceeds shipments and until a closer balance is struck between production and shipments they are likely to continue to hold their purchases at a minimum. Lubricating oils have witnessed a more rapid movement over the past week with cylinder stock prices being maintained at a peak despite the decline in the market level in the Atlantic Coast and Pennsylvania refining centers. Bright stock has had a very favorable movement at well established price. The demand has been above expectations, indicating there is a decided trend toward the use of heavier lubricants. This has been accounted for partly by the increasing number of model A Fords in use requiring an oil of approximately 320 viscosity whereas the old Fords being replaced used oils as low as 200 viscosity. Wax has been very slow to move at most any price, for there has been very little demand. Some of it has been quoted as low at 2.2 cents and the business was not secured. The general market continues to be 2½ cents with 2¾ cents quoted on small lots.

REFINED MARKET BAROMETER

Gasoline prices were well stabilized along the eastern seaboard and except for scattered purchases in the Mid-Continent, at prices below those of last week, the general market was reviewed with optimism. Kerosene is being closely held by refiners even though large stocks have been accumulated. The increasing use of West Texas crudes, from which it is difficult to economically produce a good grade of kerosene, has led to the expectation of an ultimate shortage of kerosene and is the basis of the higher prices along the Gulf Coast and the stability of the North Louisiana and Oklahoma markets. Natural gasoline showed very little change in the week. Fuel oil continues to be plentiful at all points with no change in price. There was a general strengthening in the prices of neutral lubricants along the Gulf Coast, but the demand continued slow. Pennsylvania lubricating oils, including cylinder stocks, showed additional weakness and price concessions were granted in many cases. Wax continued to be traded in small lots and after close bargaining.

Mid-Continent—Gasoline moved slowly and there was a wide range of prices. Natural gasoline also moved slowly and without price change. Fuel oil continues to be freely offered with little thought of higher prices. There was no change in the balance of the list.

Atlantic Seaboard—Gasoline prices were well stabilized and the balance of the market showed little change except the further weakening of wax.

Chicago—Gasoline moved slowly but refiners expected jobbers to re-enter the market at an early date. Fuel oil purchases continued to decline and the future of this market is very indefinite.

Gulf Coast—Light neutrals were better established at the higher prices posted last week when the balance of the refiners posted an advance to meet it. The rest of the refined oils remained unchanged.

California—There were no price changes in the list of California products.

Fuel Oil Weak

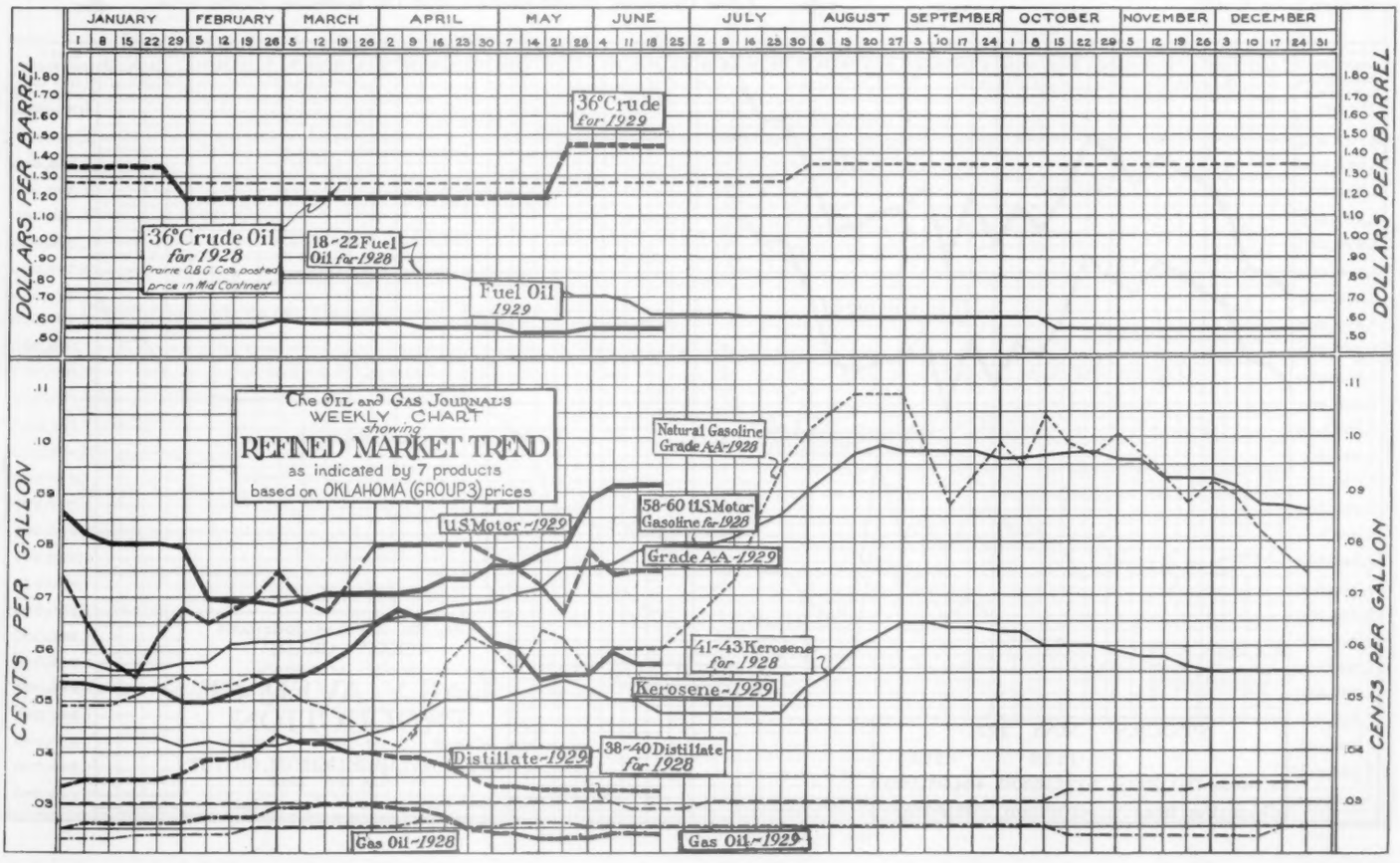
Fuel oil and gas oil continue to be the weak spots in the general refinery market. There is not much material available in Oklahoma because of the general practice of cracking these heavier oils, but even the material that is available is difficult to move consistently. There is a sharp distinction in price now being drawn between the heavy fuel unsuitable for cracking and the lighter fuel. This is more pronounced in Oklahoma than other refining areas in the Mid-Continent because of the greater use of cracking. As a result, the 14-16 gravity cracked fuels have been sold at prices as low as 42½ cents with 45 cents the general market.

With the advance in the gasoline market following the crude advance, cracking has become more profitable and in view of the large stocks of fuel oil carried by the industry any enhancement in the fuel oil market is likely to come as a result of refiners curtailing their crude runs while forcing their cracking operations to capacity. Such a condition is apt to follow a crude advance and those refiners who believe such an advance is probable have justified their high crude runs and little concern in the fuel market on this basis.

Gasoline and Naphthas

Very low quotations could be heard on practically all grades of refinery gasoline, but these were based on prices on material originating outside of Oklahoma. The North Texas area is harder pressed than other sections. Some 58-60 U. S. Motor gasoline was offered out of that section at a price equivalent to 8¼ cents Oklahoma. Abnormally low prices were quoted in a few cases last week also and it was thought then the situation would be readily rectified but this material continues to appear and is undoubtedly holding the market in an uncertain position.

(Continued on Page 161)



California Expansion Outstanding

Increased Crude Oil Production and Larger Yields of Gasoline Important Factor in General Market Over Remainder of Year

By C. O. Willson

California expansion both in the production of crude oil and refinery operation has been outstanding so far this year with the prosperity of the oil industry generally over the remainder of the year to a large extent dependent on future developments in that area. These conclusions are based on the reports of the Bureau of Mines covering operations up to May 1. These operations for the country as a whole are summarized in the accompanying table.

The government reports covering crude oil supply and demand and the detailed operations of refineries substantiate the position of those who have contended that in 1929 the California situation would be the most important single factor in the industry's markets for both crude oil and the principal refined products with West Texas and petroleum imports important contributing factors.

Turning first to the crude oil production figures the Bureau of Mines reports for the first four months of this year show that the domestic production in the United States totaled 320,921,000 bbls., an increase of 32,830,000 bbls. over the same period last year. In the same period California crude oil production totaled 93,307,000 bbls., which compares with a production of 74,465,000 bbls. for the same period in 1928. This increase of 18,842,000 bbls. thus represents 57 per cent of the total increase for the United States.

From the inventory angle crude oil stocks for the country increased 22,137,000 bbls. the first four months of this year, the stocks totaling 507,538,000 bbls. on April 30. California contributed 9,862,000 bbls. of this total. its crude oil stocks totaling 126,832,000 bbls. on April 30, compared to 116,970,000 bbls. on December 31, 1928. Of this increase 9,505,000 bbls. was classed as light oil.

CRUDE OIL RUN TO STILLS (Bbls.)

First 4 Months	Total Crude To Stills	Domestic Crude To Stills	Foreign Crude To Stills	Natural Gasoline Blended at Refineries	Gasoline Recovery Crude Oil
1929	312,023,000	286 244,000	25,779,000	13,596,000	43.1%*
1928	281,208,000	259,237,000	21,971,000	11,310,000	40.3%*
Increase	30,815,000	27,007,000	3,808,000	2,286,000	
Increase ..	19.9%	10.4%	17.3%	20.3%	

*Includes natural gasoline blended at refineries.

California Refineries

The wide significance of California crude oil production is better appreciated when it is interpreted in terms of refinery operations. Crude runs of California refineries totaled 75,336,000 bbls. the first four months of 1929, an increase of 9,219,000 bbls. over the same period in 1928. This was an increase of 14 per cent which compares with a 10 per cent increase for the rest of the country.

This increase in crude runs to stills of refineries only tells part of the story. While the crude runs to stills increased 14 per cent over the same period last year the gasoline production increased 36.4 per cent. Gasoline production jumped from 20,275,000 bbls. the first four months of 1928 to 27,701,000 bbls. the first four months of 1929. This increase of 7,406,000 bbls. was 34 per cent of the total increase in domestic production for the entire United States.

This large increase in gasoline production points to a California situation which will bear watching in the future. The increase is largely due to the fact that gasoline recovery from crude oil at California refineries increased from 30.6 per cent the first four months of 1928 to 36.8 per cent for the same period this year. These yields include natural gasoline blended at refineries. This large increase in gasoline recovery from crude oil in California is largely responsible for the fact that the recovery for the country as a whole increased from 40.3 to 43.1 per cent for the periods mentioned.

Reasons for Increase

In the past the refining industry as a unit has been accustomed to look upon California as a small producer of gasoline despite its heavy crude runs to stills due to the fact that its gasoline recovery was under 30 per cent. It is apparent that this situation is rapidly changing and that in the near future California will be as important in gasoline markets as it is in the production of crude oil.

California's increasing importance in gasoline markets is due to three developments. In the first place, its production of high gravity crudes is increasing. This gives a larger yield of gasoline in the skimming operations. In the second place California has had a tremendous increase in natural gasoline production. The same fields that have been furnishing the refiners with higher gravity crude oils, have given the gasoline manufacturers large quantities of casinghead gas to process. The latest available report on production for April, 1929, shows that natural gasoline output in California totaled 64,900,000 gallons or 50 per cent more than in April, 1928. This natural gasoline is blended at refineries and accounts in part for the higher gasoline recoveries. Finally California refiners are increasing their cracking facilities. Government reports show that the production of cracked gasoline totaled 42,083,000 bbls. the first four months of this year, an increase of 5,688,000 bbls. over the production for the same period in 1928.

California refiners have not only increased their gasoline output but unlike some of the other areas, they have made a similar increase in their sales instead of building up large inventories. California is the only area in which gasoline

(Continued on Page 120)

CRUDE OIL AND REFINERY PRODUCT SITUATION SUMMARIZED

SUPPLY AND DEMAND—CRUDE OIL (Bbls.)

First 4 Months	Total Supply	Total Demand	Excess Supply	Excess Pct.	Domestic Production	Imports	Domestic Demand	Exports	Stocks April 30
1929	350,006,000	327,869,000	22,137,000	6.6	320,297,000	29,709,000	320,921,000	6,948,000	507,538,000
1928	312,507,000	293,399,000	19,108,000	6.5	287,820,000	24,687,000	288,091,000	5,308,000	484,951,000
Increase ..	52,477,000	34,470,000	3,029,000		32,477,000	5,022,000	32,830,000	1,640,000	22,587,000
Increase	10.1%	11.7%	.....		10.1%	20.3%	11.4%	30.9%	4.6%

SUPPLY AND DEMAND—REFINERY PRODUCTS (Bbls.)

GASOLINE

First 4 Months	Total Supply	Total Demand	Excess Supply	Excess Pct.	Domestic Production	Imports	Domestic Demand	Exports	Stocks April 30
1929	136,756,000	122,807,000	13,949,000	11.3	134,702,000	2,054,000	104,892,000	17,915,000	47,015,000
1928	115,095,000	107,222,000	7,873,000	7.4	113,430,000	1,665,000	92,041,000	15,181,000	41,189,000
Increase ..	21,661,000	15,585,000	6,076,000		21,272,000	389,000	12,851,000	2,734,000	5,826,000
Increase	18.8%	14.5%	.....		18.7%	23.3%	13.9%	18.1%	14%

KEROSENE

1929	18,168,000	19,672,000	*1,504,000	*8.2	18,084,000	84,000	12,607,000	7,065,000	7,497,000
1928	19,638,000	19,620,000	18,000		19,555,000	83,000	11,955,000	7,665,000	7,733,000
Increase ..	†1,470,000	52,000	.....		†1,471,000	1,000	652,000	†600,000	†764,000
Increase	†7.4%	.2%	.....		†7.4%	1.2%	5.4%	†7.8%	†9.9%

*Excess demand. †Decrease.

FUEL OIL AND GAS OIL

1929	149,883,000	152,148,000	*2,265,000	*1.5	146,158,000	3,725,000	‡140,162,000	11,986,000	133,736,000
1928	134,586,000	123,978,000	10,408,000	8.4	133,217,000	3,243,000	‡118,590,000	15,775,000	123,970,000
Increase ..	15,497,000	28,170,000	.....		12,941,000	482,000	21,572,000	†3,789,000	9,766,000
Increase	11.5%	22.7%	.....		9.7%	14.8%	18.2%	†2.4%	7.9%

*Excess demand. †Decrease. ‡Estimate. Data on stocks and demand include some California heavy crude oil.

LUBRICATING OIL

1929	11,300,000	11,299,000	1,000		11,290,000	10,000	7,481,000	3,818,000	8,341,000
1928	11,288,000	11,130,000	158,000	1.4	11,287,000	1,000	7,459,000	3,671,000	8,018,000
Increase..	2,000	169,000	.....		3,000	9,000	22,000	147,000	323,000
Increase	.....	1.5%	.....					4%	4%

PETROLEUM WAX (Data Given in Pounds)

1929	234,617,000	174,274,000	50,175,000	27.2	223,260,000	11,357,000	76,059,000	98,215,000	170,687,000
1928	219,471,000	260,400,000	*30,761,000	*14	212,254,000	7,217,000	108,383,000	152,017,000	109,709,000
Increase ..	15,146,000	†86,126,000	.....		11,006,000	4,140,000	†32,324,000	†53,802,000	60,998,000
Increase	6.8%	†33.7%	.....		5.1%	53.3%	†29.8%	†35.4%	55.8%

*Excess demand. †Decrease.

Note—Total supply, domestic production plus imports. Total demand, domestic demand plus exports. All data derived from Bureau of Mines reports.

Conference Narrows Course of Action

Colorado Springs Meeting Showed Difficulty of Procuring Interstate Compact and Pointed Way to Federal Commission

By Andrew M. Rowley

Notwithstanding the fact the impression prevails in many quarters that nothing was accomplished at the oil conservation conference which met last week in Colorado Springs at the call of President Herbert Hoover, and that newspapers throughout the country published columns of matter seeming to bear out this impression, much was accomplished at the meeting.

It must be remembered that negative action is just as important as a positive declaration. The Colorado Springs meeting was called for the primary purpose of considering an interstate compact through which the different oil-producing states might have closer and more uniform supervision over drilling operations and the production of crude oil.

The conference demonstrated clearly the difficulty of endeavoring to get the big oil-producing states to agree to place the supervision of the petroleum industry of the individual states into the hands of an interstate commission. It proved conclusively there are so many divergent views within the petroleum industry that no compact could be drafted which would satisfy probably even a majority of the operators, landowners, royalty owners and others who are taking such an active interest in the matter.

Narrowed to One Project

Consequently, the big accomplishment of the Colorado Springs conference was the elimination from further consideration of many theories, plans and projects which have been agitated from time to time by many organizations, associations and Federal and state officials. Also, in line with this, the narrowing down to or pointing to probably the only recourse left for those who really desire definite action taken to curb the overproduction situation in time to do the petroleum industry and the public any good.

Those in the petroleum industry who have worked sincerely and conscientiously in an effort to evolve some plan whereby crude oil production might legally be held down to market requirements and thereby effect stabilization of the industry, are now, more than ever, of the opinion the only step that can be taken by the Government to effect a solution of the problem in time to do any good, is for the President to appoint a fact finding body and for Congress to empower this body with authority to temporarily set aside the provisions of the Sherman antitrust act during times of overproduction or waste of our natural resources.

In other words, it would take a long time to get representatives of the principal oil-producing states to agree on an interstate compact, if such a thing were ever possible. Even after they might agree, it would then be necessary to have the legislatures of the different states approve such a compact and the legislature of California, for instance, will not meet again for two years, unless called in special session. Then should the legislatures of all the states affected approve the interstate compact, Congress would have to ratify it. By the time all this were done, conditions in the petroleum industry might easily be entirely different from what they are now and the necessity for an interstate compact might have passed.

The President could present to Congress the facts gleaned at the Colorado Springs meeting and ask Congress to authorize a fact finding organization with power to investigate the matter of overproduction in our natural resources, such as petroleum, and, upon finding that overproduction does exist, that body could then officially declare a condition of overproduction did exist and that during that period of overproduction, provisions of the Sherman anti-trust act prohibiting co-operative agreements to restrict production or provisions of the Wilson act prohibiting agreements to restrict imports into this country, would not be made operative.

The three sessions of the oil conservation conference held on June 10 and the morning session on June 11 were important from the standpoint of getting into the official record the different views of the various states and associations connected with the petroleum industry on the general subject of conservation. What is regarded as the real sessions of the conference, however, were held Tuesday afternoon after official adjournment of the general conference participated in by the various associations and on Wednesday. At these sessions, official representatives of the different states, including the four governors attending the conference, and official representatives of the Federal Government, were present. The different associations, including the American Petroleum Institute, were not represented officially at these sessions. The official list of representatives of the different states participating in the Tuesday afternoon and Wednesday sessions follows:

Official Representatives

Arkansas: J. W. Olvey, chairman, O. G. Murphy.

Colorado: Attorney General R. E. Winbourn, chairman, Gov. William H. Adams, J. T. Barnett, Robert D. Hawley.

California: F. G. Stevenot, director of the Bureau of Natural Resources, chairman, Attorney General U. S. Webb, W. J. Carr, member of the Railroad Commission, and R. D. Bush, State Oil and Gas Supervisor.

Kansas: Gov. Clyde M. Reed, chairman, A. M. Landon, F. A. Pielsticker, and Dana Kelsey.

Louisiana: W. Scott Heywood.

Montana: L. Dennis, chairman; Gov. J. E. Erickson and C. J. Dousman.

New Mexico: Lieut. Gov. H. B. Woodward, chairman; F. C. Wilson, H. R. Crile, B. C. Mossman, and C. C. Staley.

Oklahoma: Asst. Atty. Gen. J. B. King, chairman; E. W. Marland, James A. Veasey, and Pat Malloy.

Pennsylvania: J. C. Trees, chairman; W. M. Irish, and L. W. Young.

Texas: M. M. Crane, chairman; C. V. Terrell, and C. L. McCartney.

Utah: W. R. Wallace, chairman.

Wyoming: Gov. Frank C. Emerson, chairman; C. M. Cox, William C. Wilson, R. B. Brooks, and A. C. Campbell.

Doubt Authorization to Act

It was at the session Tuesday afternoon it developed many of the state delegations did not feel they were authorized to take any official action in the conference in the matter of voting on any proposition which might tend to bind their state in any way. When this situation was realized, further discussion ended on the statement of principles advocated by Governor Reed of Kansas (see The Oil and Gas Journal of June 13) and the conference, by resolution, asked the delegates representing Texas, Oklahoma and California, to confer and report to the conference just what they felt should or could be done, the conference realizing these States represented the big bulk of crude oil production and that nothing could be done without their support, or unless these three States were in a position to formulate some plan of action.

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WORKING ON ANOTHER CONFERENCE

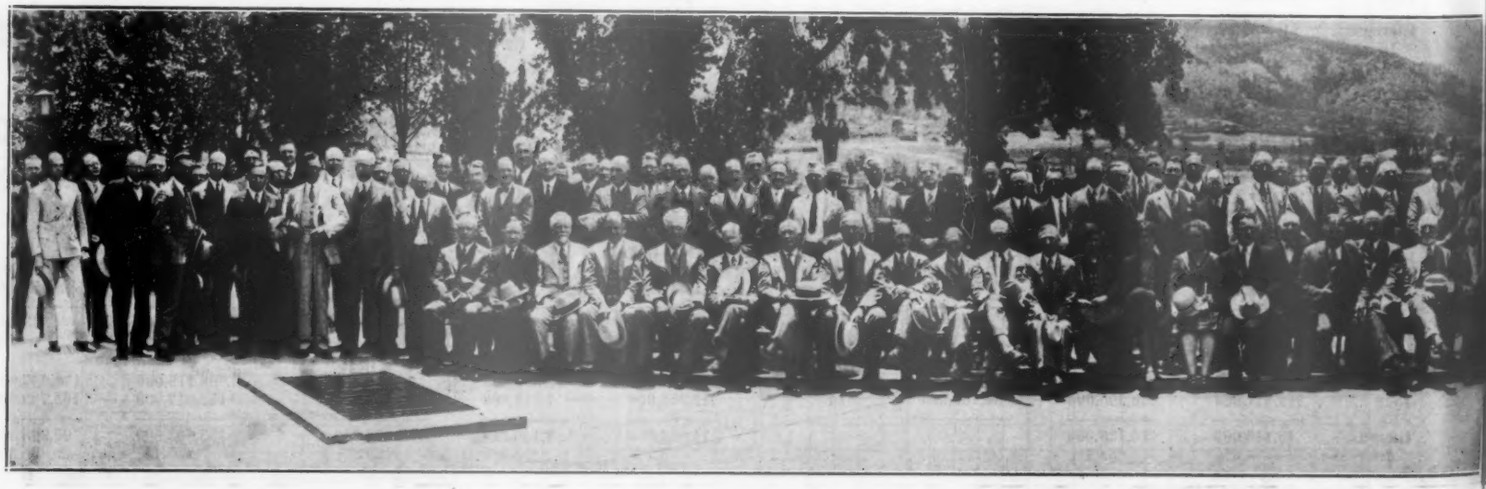
WASHINGTON, D. C., June 18.—Mark L. Requa, chairman of the oil conference at Colorado Springs, is working out details for another conference. He is now in touch with governors of western states urging their attendance and definite action at another conference to be called in the near future.

Dr. George Otis Smith today said the failure of the conference to achieve more tangible results was due largely to the fact that the three main oil-producing states "sent delegates rather than plenipotentiaries who did not have power to commit their states on anything."

Doctor Smith said most of the opposition at Colorado Springs was mere "oratory." He said the Administration would not waver on its present stand for oil conservation. He said there is a possibility that the prospecting permit on the public domain may be temporarily resumed in certain states, but this should be only after the present order against prospecting permits has had the effect of retarding production as contemplated.

It is the hope of Secretary Wilbur and Doctor Smith to reach understanding with other lease holders and operators in the Kettleman Hills Field in California in the upper and lower zones to further retard development.

REPRESENTATIVES OF FEDERAL AND STATE GOVERNMENTS AND OF OIL



And Now the Roughneck Takes Up Golf

Skinner and Millionaire Operator Speak Same Language, and Lots of It, When They Slice a Drive at the Seminole Links

By Thomas F. Smiley

There's no use trying to keep the thing secret longer when anybody can see them at it in broad daylight from the public highway. The roughneck, the roustabout, the skinner—yes, the whole oil field outfit—are playing golf.

Enjoying it too. Make no mistake about that. Oh, certainly they used to make caustic comments when they came upon the familiar newspaper item about John D. playing his 9 holes at Orlando. But that was before they themselves fell victim to this queer malady that seizes a man who picks up a golf club, hefts it, flails about with it a few times and then begins whanging away at a ball.

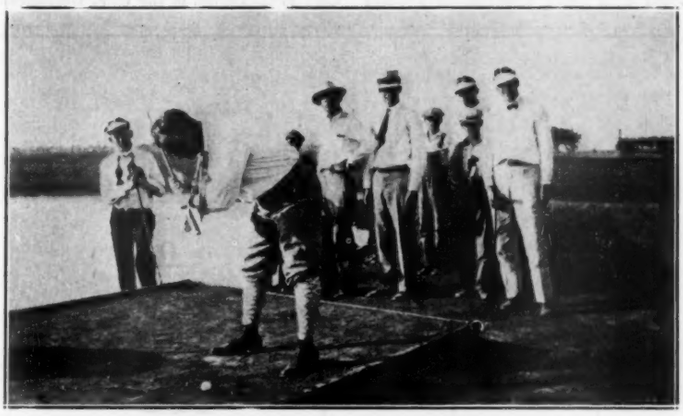
"Huh, chase one of those little white balls around the country with a shinny-stick? Not on your life! If you ever see me doing it you'll know I'm getting paid for it, thassall."

Thus spake Bill Martin, manager of the Seminole branch of an oil field equipment concern, when he was asked why he didn't play golf. Loftily and with an air of finality he spake it. But behold him now, patiently toting his $50 worth of clubs around the Seminole Golf and Country Club course. Is he paid for it? On the contrary he loses no opportunity to start chasing that little white ball around the country without any thought of monetary gain.

Scoffer Becomes a Fan

Bubbling with enthusiasm and optimism, this one-time scoffer tees off at the club house. After he has played a few holes above par a gleam of high resolve lights his eye and an expression of grim, unyielding purpose settles over his ordinarily good natured features. At the ninth and last hole, when his expectations have been shot to pieces and his card shows a score that isn't within speaking distance of the par for the course, does he abandon the game as foolish and cease trying to accomplish the seemingly impossible? Why, of course not. He just says a few things he wouldn't want his pastor to overhear, tells inquiring friends that a bad lie at the eighth hole was to blame—and comes back the next Saturday afternoon to do the whole thing over again.

Bill Martin's case isn't essentially different from scores of others at the Seminole links, where oil men of all grades and types have contracted the golf mania. Roustabout and superintendent meet on common terms. The democratizing influence of the game is not exceeded by even the freemasonry which binds two men who have discovered they suffer from the same kind of rheumatism. Although not yet a year old, the Seminole Golf and Country Club is a flourishing institution, with big plans for the future.



Here is Bill Craig, manager, teeing off on No. 9 green.

There had been much talk about the need of a golf course. It was said that men in the various committees making up the greater Seminole area ought to have a place near at hand where they could find relaxation. So the Seminole Chamber of Commerce held a meeting early in the summer of 1928 to discuss the matter of building a golf course. With characteristic snap and go that organization soon had things moving swiftly. Dr. J. N. Harber, mayor of Seminole, acted as chairman. William F. Craig, manager and caretaker of the Shawnee Country Club at Shawnee, Okla., attended on request to help in formulating plans. Bill was asked to undertake the construction of a golf course, with necessary appurtenances, and to operate it as a private enterprise with the assured backing of responsible men in the chamber of commerce.

Sixty-Five Acres Leased

Sixty-five acres of land on the west side of No. 3 highway, 3½ miles northwest of the town of Seminole, was leased from S. D. Powell, a retired ranchman, by Mr. Craig, who resigned his place with the Shawnee club and forthwith began devoting all his energies to the Seminole enterprise. In acquiring this lease and in the subsequent construction of a golf links on it Mr. Craig received needed financial help from the projectors of the club. Enough "play-right" memberships were promised by the club guarantors to insure a regular income. Each of these memberships, costing $50 annually, entitled the holder, his wife and any of their children under 21 the privileges of the club.

On August 24, 1928, workmen under the direction of Mr. Craig began laying out a 9-hole course. The work was completed and the links ready for play in 36 days. On September 30, the opening day, 500 persons were on the grounds and an informal celebration was held.

There are five water hazards on the course. Some of the greens are flat and some are raised. The par of the course is 36. The distance is 3,108 yards. No. 8 hole, 400 yards, built on a peninsula, as shown in the accompanying picture, has the name of being the hardest in Oklahoma to make its par of 4. The water hazard which almost surrounds it has been the burial place of high hopes and numberless golf balls.

"There must be a barrel of balls in the bottom of that lake," said Bill Craig.

Mr. Craig employs modern power machinery in keeping the course in condition. His equipment includes a rough hay mower, a 3-ton iron roller, a 5-unit lawn mower and a wire drag of his own construction. He and his son, "Young Bill" Craig, 13, do most of the work.

Only One Man Has Shot Course in Par

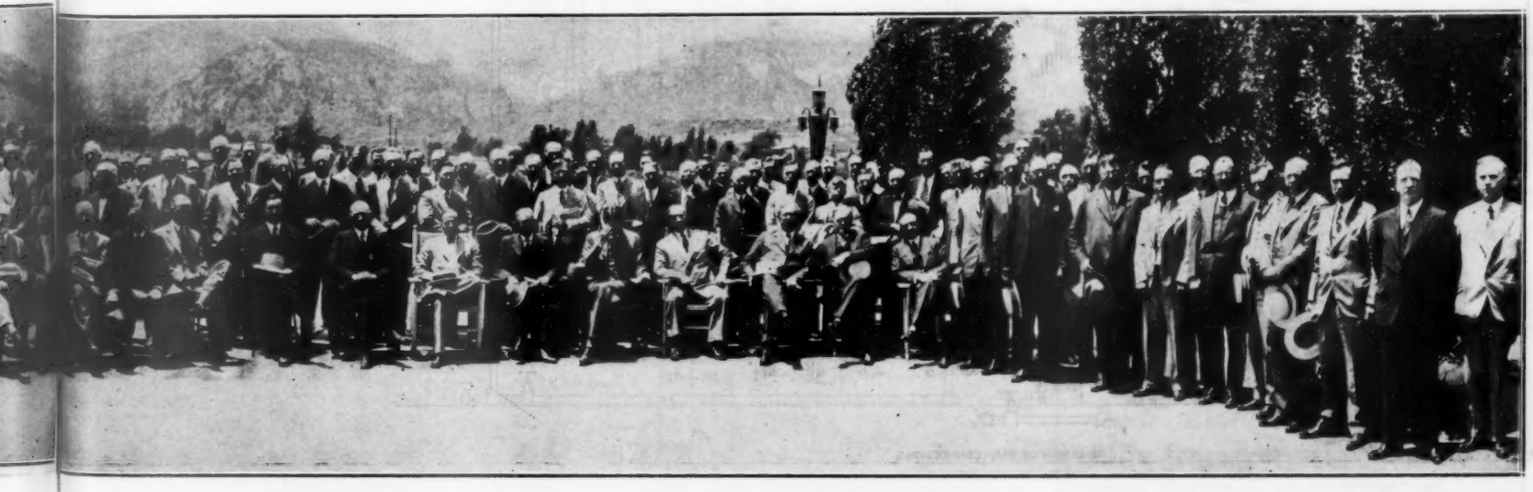
Rex Moore, formerly representative for an oil field equipment concern, and now a member of the postoffice force in Seminole, is the only person who has shot the course in par or better. On a recent Sunday he went over it twice, making it in 33 the first round and in 34 the second, 67 for the 18 holes, 5 less than the par. Guy Crooks, professional at the Lakeside Golf and Country Club, Tulsa, did the 9 holes in 38. Wilford (Chick) Clark, pro at the Meadow Lark Club, Shawnee, made it in 40. So did Bill Craig, who has not yet given up hope of equaling par or beating it.

Wealthy operator, district superintendent, truck driver, roughneck, tank builder, roustabout, skinner, ditch man—they all play together. Four men credited with being millionaires are on the membership list of the club. They swap experiences with the humblest oil field worker.

Robert Bass, Prairie Oil & Gas Co., went over the course twice recently, making it in 41 the first time and bettering his score by one stroke the second time, 81 for the 18 holes. Dave Bell, Oil Well Supply Co., who played with Mr. Bass, shot 41, 41—82. Dr. O. C. Butler, Seminole physician and a beginner at the game, astonished onlookers—and himself—by making No. 2 hole (112 yards) in 1. He ordinarily shoots the 9 holes in about 50. "Young Bill" Craig has made the 9 holes in 41, and 18 in 84. There

(Continued on Page 81)

ASSOCIATIONS AT OIL CONSERVATION CONFERENCE, COLORADO SPRINGS



—Exclusive picture taken by The Oil and Gas Journal and copyright by the The Petroleum Publishing Co., Tulsa.

Treating Oil By Use of Chemicals

Importance of Effective Plant Emphasized and a Method that Has Proved Successful Is Set Forth

By Richard T. Bright*

With each succeeding year the finding of new oil pools is becoming increasingly difficult and the cost of drilling the wells and producing the oil is steadily mounting. Costs of lifting the oil, and general operating expenses are materially greater than they were a few years ago, because of the more exacting requirements involved in producing at the present depths. As a result operators are continually seeking ways and means of increasing operating efficency, by improvements in methods and equipment that will aid in the conservation of oil and gas.

It is the desire of the engineers of the United States Geological Survey who have supervision of the drilling for and the production of oil and gas on restricted Indian and public lands to co-operate with the operators in preventing the waste of oil and gas. This article presents the essential features to be observed in treating oil by the chemical method with detail drawings of a plant in the hope that it will aid oil producers in solving some of their treating problems. No attempt is made to discuss the theory of emulsions or the well conditions causing the emulsions; the article sets forth what is generally considered the best practice in breaking down the oil emulsion by the chemical method as the emulsion comes from the well.

For suggestions and criticisms that have been of great help in the preparation of this article, the writer is indebted to Charles Prater, of the Gypsy Oil Co.; T. G. Taylor, of the U. S. Geological Survey; C. V. Millikan and C. H. Pishney, of the Amerada Petroleum Corp.; and Lloyd Holsapple, of the Sinclair Oil & Gas Co.

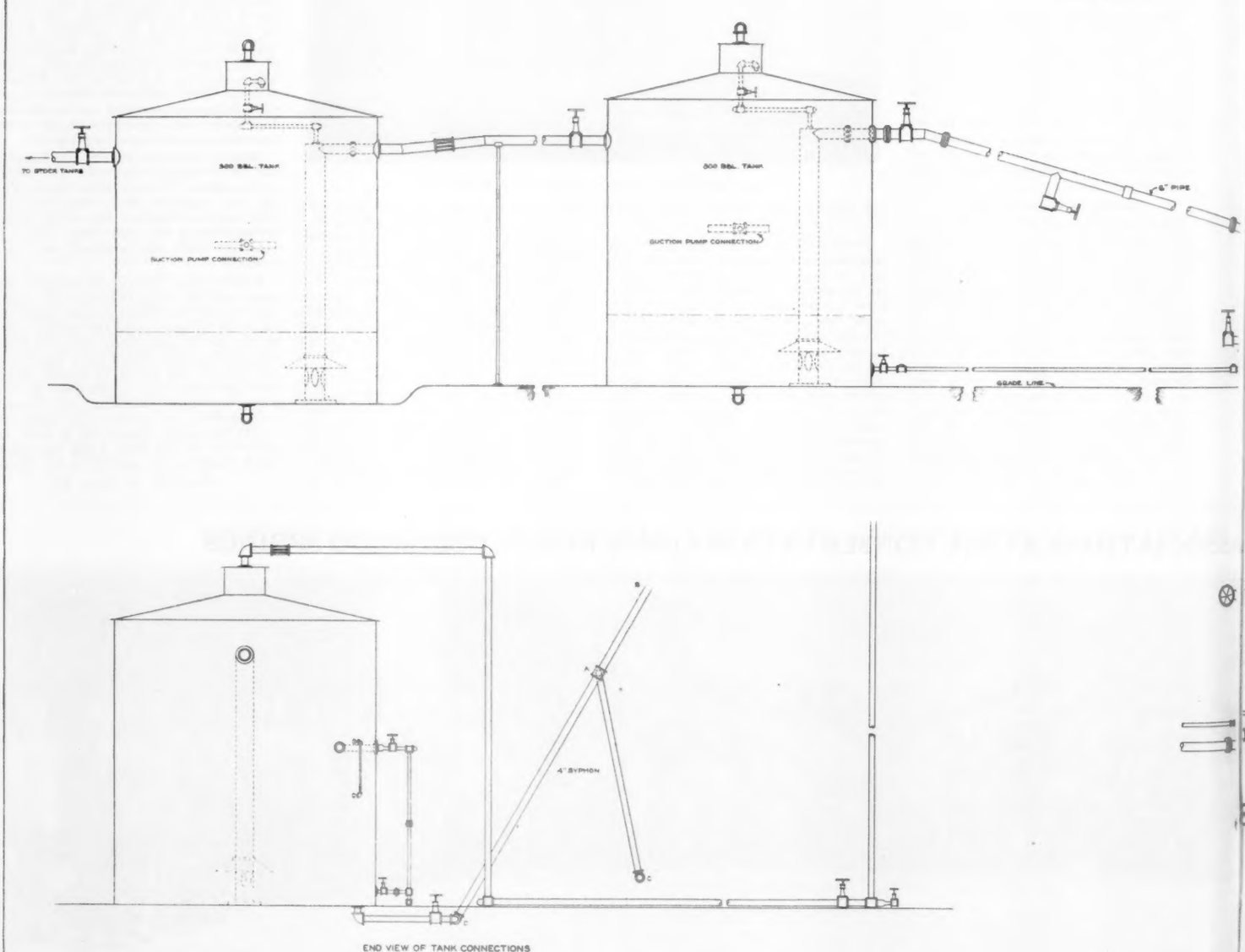
*Formerly associate petroleum engineer, U. S. Geological Survey. (Published by permission of the director, U. S. Geological Survey.)

Classification of Compounds

A great amount of experimental work has been done with many chemical compounds in determining their relation and effect on oil emulsions. Dow[1] has classified these chemical compounds into six groups, according to the effect that each group has on the protective film which

[1]Dow, D. B., Oil Field Emulsions, U. S. Bureau Mines Bulletin No. 250, 1926.

FIGURE 1



surrounds the finely divided particles of water. These groups are as follows:

1. Compounds with a strong tendency to take up water and form different substances.

2. Compounds that cause flocculation of the substance composing the protective film.

3. Compounds that may react with salts in the water or upon the organic acids that may be present.

4. Compounds that tend to break the protective film by their tendency to form opposite types of emulsion.

5. Electrolytes that tend to neutralize the electrical charge on the surface of the emulsified water.

6. Solvents that tend to dissolve the material making up the protective film.

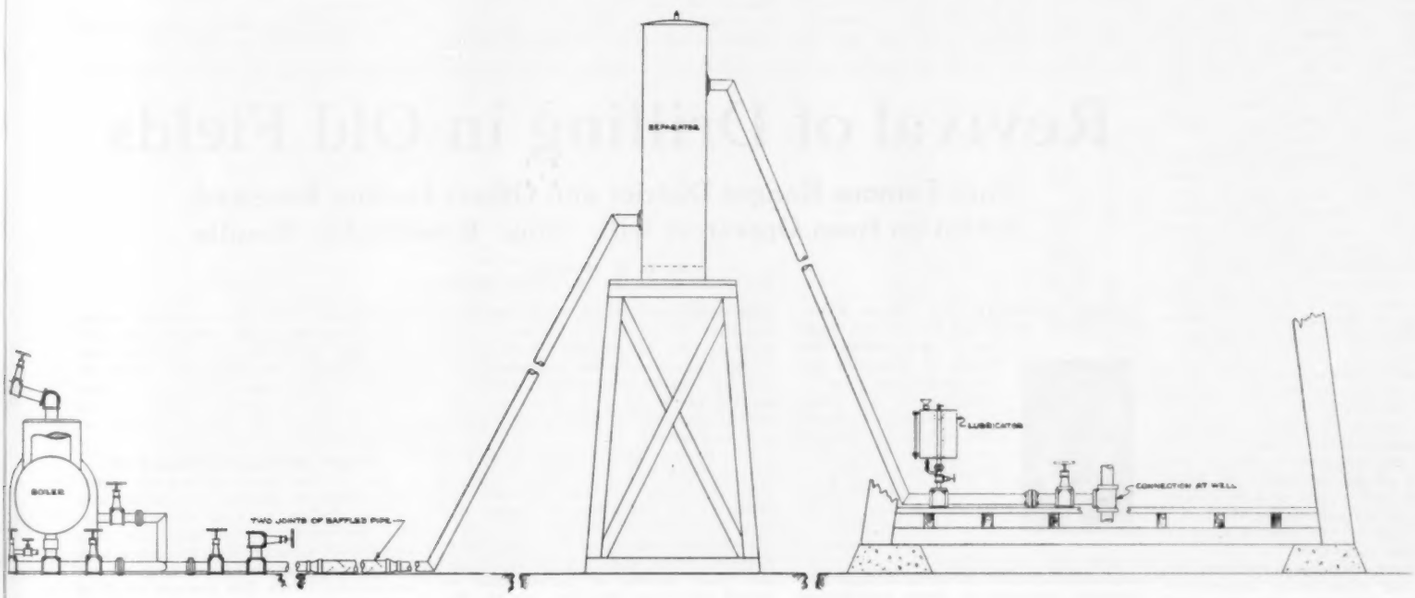
The chemicals contained in each group have been tried with varying degrees of success. Owing to high cost, low efficiency, or limited applicability most of them cannot be satisfactorily used. Substances that fall in group 4 are considered best for breaking down cut oil. Types of plants that use chemicals in this group are described in this article.

Treating plants in the Mid-Continent Field that use chemicals to break down the oil emulsion are of many types. The efficiency of a large number of these plants is questionable. Unless cost records are carefully checked a low treating cost per barrel may not reflect efficient recovery. A plant of unsuitable or poor design may show a low treating cost, but unless it breaks down all the emulsion it is inefficient. A plant of suitable design generally costs more to install than the average type now in use, but the installation of such a plant will cut down the chemical and heating cost and assure complete recovery of the oil. One company, which obtains complete recovery, has a chemical cost as low as one-third of a cent a barrel for all of its properties in the Mid-Continent Field, but the cost for some other companies is as high as 20 cents a barrel, and the estimated average for all companies is 5 cents a barrel.

In keeping with its policy The Oil and Gas Journal presents herewith a story about a process of treatment for oil and water emulsions, the result of a careful study of this very important subject, largely supervised by Richard T. Bright, consulting petroleum engineer, of Tulsa, formerly with the U. S. Geological Survey at Muskogee, Okla. It is felt that Mr. Bright's contribution to this science is timely and valuable. It is intended to print other articles on this same subject dealing with different phases of the problem.

Figure 1 shows a general type of plant which, with but few changes, can be adapted to most fields. This plant treats the cut oil after it comes from the well. Its maximum capacity is 5,000 bbls. of fluid a day. A force feed pump or lubricator, placed on the flow line between the well and the separator, introduces the chemical into the emulsion. Wherever possible it is advisable to use a force feed pump rather than a pressure lubricator, for the pump assures a more uniform introduction of the chemical into the flow line. Where it is necessary to use the lubricator, however, as at wells on the gas lift or on the swab, little trouble has been experienced in getting the chemical into the flow line at a regular rate. On swabbing wells or on wells flowing by heads, oil from the flow line will sometimes back up and mix with the chemical in the lubricator, and it cannot get out except through the small feed line. To overcome this difficulty a volume tank can be inserted between the flow line and the lubricator, or the volume tank can be welded inside the lubricator, as shown in Figure 2. Sometimes a volume tank is not satisfactory when both the volume of gas and the production of oil is small, as oil from the flow line finds its way into the lubricator, and there is not sufficient gas to force out the chemical at regular intervals.

(Continued on Page 80)



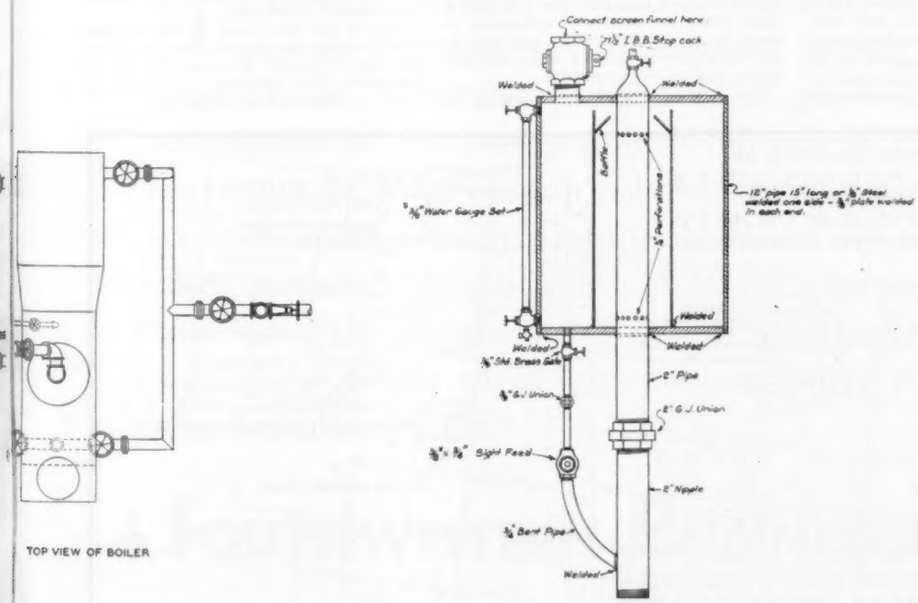


FIGURE 2

DEPARTMENT OF THE INTERIOR
U. S. GEOLOGICAL SURVEY
OIL & GAS OPERATIONS
MUSKOGEE, OKLA.

OIL TREATING PLANT
ADAPTABLE TO
GENERAL CONDITIONS

COMPILED BY: R. T. BRIGHT	SCALE: ½" = 1'
DRAWN BY: G. I. BYSTROM	NO. MUSKOGEE 1206
APPROVED BY: W. B. Smith	DATE: MARCH 19, 1929

Government Upheld in Cracking Cases

Judges Evans and Page Reverse Report of Special Master Martindale, Judge Anderson Dissenting. Points in Decision

A special master's decision, denying the Government an injunction against Standard Oil Co. of Indiana and 50 other oil corporations, charged with violation of the Sherman antitrust law, was reversed in a report of three judges of the United States Circuit Court of Appeals at Chicago.

The previous ruling, entered by Special Master in Chancery Charles Martindale, was reversed by Judges Evan A. Evans and George T. Page. Judge Albert B. Anderson upheld the previous decision.

The suit involved alleged monopoly and restraint of trade through control of cracking patents. Nearly 77 patents were involved.

The salient points of the decision follow:

Petitioner brought this suit to enjoin alleged violations of Sections 1 and 2 of the Sherman Act. Defendants are grouped into two classes, one called primary defendants (the Standard Oil Co. of Indiana, The Texas Company, the Standard Oil Co. of New Jersey, and Gasoline Products Co.) and the other, described as secondary defendants, included 46 corporations and 1 individual.

Two defendants, Joseph H. Adams and M. W. Kellogg Co., were later made parties defendant. As to Adams, petitioner sought the cancellation of certain patents to him issued because of fraud practiced in their procurement. As to Kellogg company, it was charged that it was in a conspiracy with the primary defendants to injure competitors who were engaged in licensing producers under process covered by patents belonging to one Fleming.

All the defendants are engaged in manufacturing, selling, or handling gasoline within the confines of the United States. Petitioner charges an unlawful combination and conspiracy to monopolize interstate trade and commerce in cracked gasoline. This alleged monopoly or illegal restraint of trade exists, so it is alleged, because of certain agreements which deal with the right to use certain patented processes and apparatus.

The primary defendants executed certain so-called cross-license agreements. The secondary defendants thereafter took sublicenses from one of the other of the primary defendants.

Definition of Cracking

Quoting from the master's report, the decision says:

" 'Cracking' is a very broad term which covers almost any splitting apart or joining together of hydrocarbon molecules. In this record we have to deal only with pyrogenetic 'cracking.' The reactions are extremely complex—so complex that the most learned chemists and physicists are careful to limit and qualify what they know about what takes place in the reactions.

"It is conceded that in the cracking of oil there are generally produced by 'cracking' both lighter constituents and heavier constituents, and the attention of the chemist in this art is usually focused merely on the lighter constituents; and also that if cracking is carried to an extent sufficient to make any considerable amount of gasoline, there will be resultant coke and gas.

"The great advancement in the last quarter of a century in the development of steels has made it possible to control pressure so far beyond those which were formerly considered dangerous that the new compounds of high distillation have revolutionized some industries. In this industry, where formerly 75 pounds to the square inch was considered approaching the dangerous pressure, in the Cross process of the defendant Gasoline Products Co., a pressure of 700 to 850 pounds to the square inch is availed of and may even go beyond that point.

"We are dealing here with 'cracking processes' to produce motor fuel employing heat and pressure. A 'cracking process' in this sense is one in which the splitting apart and joining together of the hydrocarbon molecules proceed to an extent sufficient to form products suitable for motor fuel in commercial quantities by temperature, pressure, and sufficient time of reaction under favorable conditions to allow the disrupted and disarranged molecules to form new molecular combinations.

Four Types

"The art under examination has been classified into four types of pyrogenetic cracking processes, which are:

"First. Bulk distillation at atmospheric pressure, which is characterized by the fact that a large body of oil is held at a cracking temperature for a very long period of time (a matter of hours or days). This would include the class in operation in which cracking takes place in the latter part of the ordinary coking method of running crude oil. This method of cracking was only applicable to materials which boiled higher than gas oil (well above 700 degrees), because everything in the ordinary gas oil range and lower distilled out before appreciable cracking began to take place. This method requires hours or days at temperatures generally between 700 and 820 degrees Fahrenheit, and such processes usually run to a coke bottom which is not feasible in bulk pressure distillation. The method produces comparatively little gasoline together with considerable gas and a large amount of coke.

"Second. Bulk pressure distillation—a very slow distillation. In this method a large body of oil is held at a cracking temperature for a long period of time—a matter of hours and days—but under substantial pressure, and there is distilled out of the system the products somwhere nearly as fast as they are formed, letting the unchanged products stay back for a longer time under cracking conditions. The degree of pressure, of course, correspondingly raises the degree of temperature at which given products can be held liquid, and therefore tends to increase the cracking rate and makes it possible to crack lighter materials than in a still without pressure.

"Third. Tube cracking—which includes a great many of the prior art processes where the oil is passed through a long narrow retort or tube which is heated generally to a bright red heat and the stream of oil is passed through and undergoes progressive evaporation and decomposition. In some cases, the oil has been vaporized before it enters the cracking system.

"In this method, while passing through

(Continued on Page 120)

Revival of Drilling in Old Fields

Once Famous Ranger District and Others Getting Renewed Attention from Operators with Some Remarkable Results

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., June 15.—While West Texas has been in the limelight, and holding the stage of activities for the past three years, bringing in new pools in the various parts of the district, some of the pools being phenomenal in one way or another, and the Panhandle getting a big play, receiving much attention from producers, refiners and carbon black plant engineers, and the towns and the cities in these two districts expanding by leaps and bounds due to the number of people these various activities have brought into them, Central Texas counties, and North Central Texas counties have been receiving but little of the publicity and attention due them.

The public is always interested in the phenomenal, and in great achievements. It is human nature to be attracted by such happenings, while other important incidents which are not quite so phenomenal pass by unheard of, except by a few. Consequently the few who do accomplish unsung achievements should be granted praise for what they have performed, and credit should be given to the area represented.

The Ranger district might be said to have had its day, the trend of the oil industry passing onward to other and newer fields, but there are many who have stayed in this district, and others have become interested in it and have migrated to it, and it is to these men and their success or failure that we should give some attention, for the district is far from being uninteresting or dead as some few might think, and new discoveries and new activities are taking place which are especially interesting to many in the oil fraternity, not only in the immediate vicinity of these achievements, but to others outside.

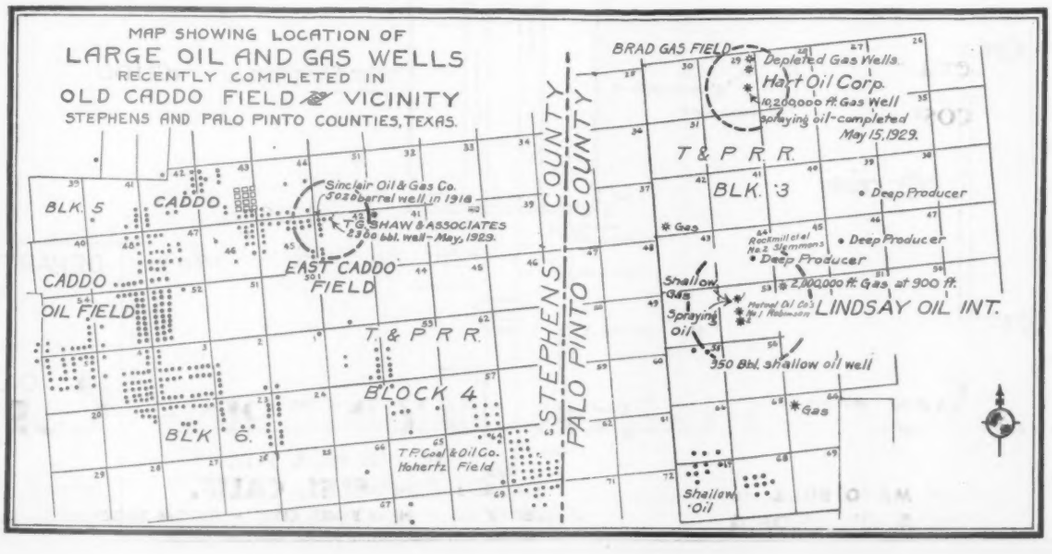
Two plats are published herewith to show areas which are especially active and interesting at the present time, and these two areas are not the only ones in the district, but have been chosen to give a definite understanding as to just what is taking place in parts of the counties which are getting "plays" at this writing.

Deeper Drilling in Graham Pool

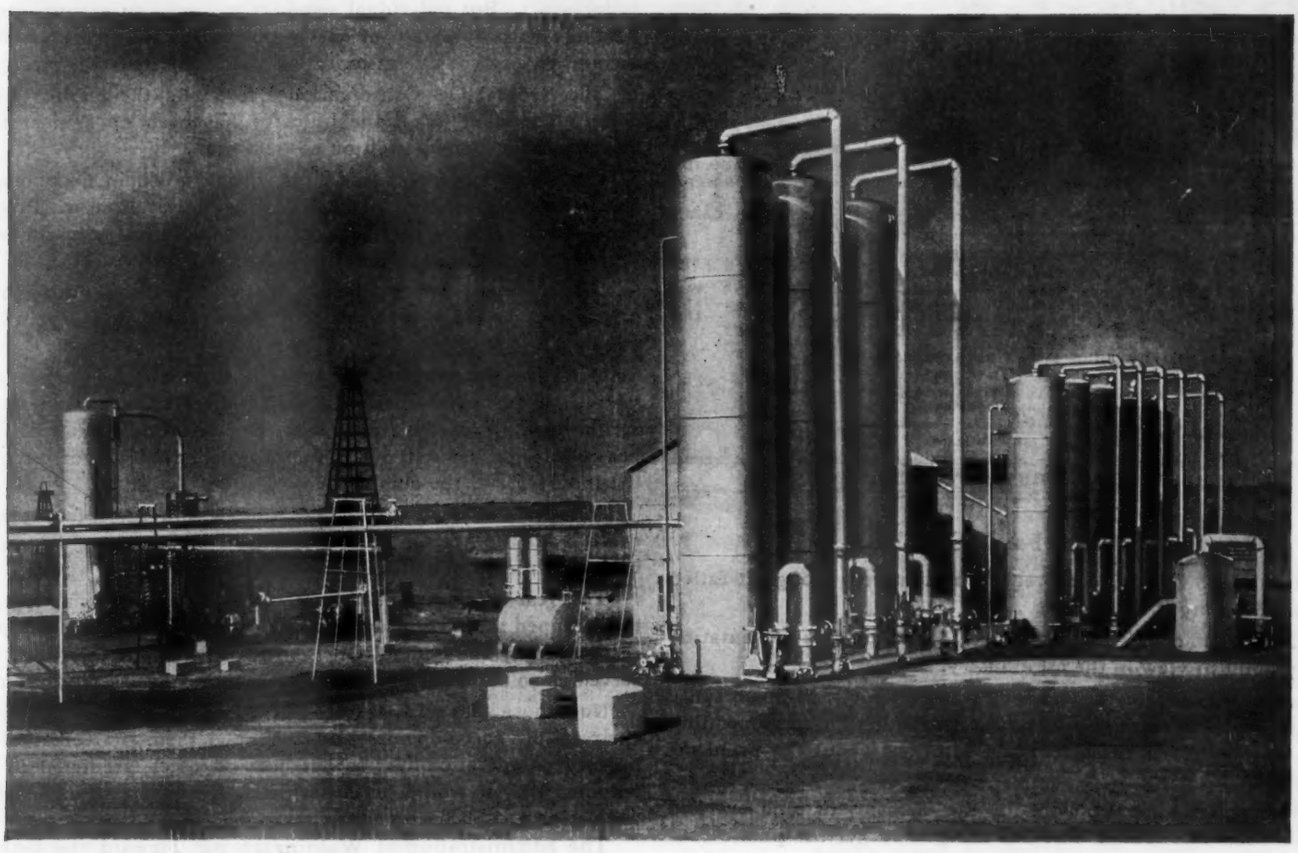
One of these areas, having an important present, is the area around Graham in the southern part of Young County. The first pool in this immediate play was the old Graham Pool which has been producing for several years from a sand around 2,175 feet. The average depth of completion of this pool is about 2,215 feet. Some of the wells were drilled deeper trying to pick up other pays, the Ranger lime around 3,900 feet.

One of the later wells in the Graham area, outside of the old Graham Pool, was the Panhandle Refining Co.'s No. 1 Morrison. This discovery is located in

(Continued on Page 94)



CUT MANUFACTURING COSTS



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The OIL and GAS JOURNAL

PRODUCING REFINING ENGINEERING MARKETING

Published Weekly by
THE PETROLEUM PUBLISHING COMPANY
114-116 West Second Street
TULSA, OKLA.

Established as an International Publication in 1910 by Patrick C. Boyle.

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MEMBER AUDIT BUREAU OF CIRCULATIONS

GET THE FACTS FIRST

The Colorado Springs conference was a success though it failed to accomplish anything definite.

It afforded an open forum for a full, frank and free presentation of every point of view in the oil industry.

No other meeting of the industry was ever given so much space in the newspapers throughout the country and to a corresponding extent the public was interested and informed about the problems of the oil business.

It does not matter so much, for the moment, that no cut and dried solution was found. The big thing is to get the public convinced that a solution must be found, because whatever plan might be adopted must have the approval of the public to get through.

This is especially true of the Interstate Compact idea which would have to run the gauntlet of the legislatures in the oil-producing states and then of the national Congress at Washington.

The notion that a handful of governors could pledge their states on such a program betrays a lack of understanding of practical politics. Action on an Interstate Compact would have to be taken by the legislatures, not by the governors alone.

Even if the delegations at Colorado Springs had been authorized by their governors to act for them they would not have been able to bind the legislatures.

This is so of any future conference such as suggested of three official delegates selected by the governors.

Aside from that, it would require a lot of optimism on the part of anyone who has read the reports of the Colorado Springs meeting to imagine it at all possible for the several states to select delegates who could agree on the details of any Interstate Compact.

In fact, if there was one thing that stood out in that conference besides the general resentment at anything savoring of governmental coercion, it was the wide divergence of opinion between the states which were not producing enough oil and those which were producing too much.

It may be well enough to give further study to the compact idea but it is probable that the more it is studied the more impractical it will be seen to be.

The fundamental fallacy is the requirement of agreement between the states as a basis for federal co-operation, because if we could have agreement among the states the problem would be solved.

But before we could have agreement between the states each state would have to decide for similar legislation, and if each state enacted uniform legislation that would be all the agreement necessary.

It looks very much as if the Interstate Compact idea was starting to put on a roof before putting up the walls.

The Colorado Springs conference agreed on nothing. The governors present and the "observers" from the various states were just as far apart. But individual speakers managed to enliven the proceedings with a variety of views that will have to be taken into account in any consideration of the future of the industry.

The Federal Oil Conservation Board and the public can now better understand what the industry has been up against in the movement for co-operation on conservation.

What that movement was able to accomplish in Oklahoma and Texas is history, but it justified the declaration of President Coolidge in creating the oil board that "the industry might be permitted to determine its own future."

It began by promoting the co-operative spirit and putting it into practical purpose, not by attempting to impose it upon an unwilling majority.

The same educative policy must be continued, even if an Interstate Compact was desired or possible, or whether we depend upon action by the separate states, because in either case it will be impossible to get far without the approval of the bulk of opinion in the industry and the outside public.

If there was need for co-operation within the industry before there is all the greater need now with a threat of rigid regulation before it in case of failure to co-operate.

The fear of governmental interference under the antitrust act handicapped the early progress of the co-operative movement as was recognized by the Federal Oil Board when it said "this uncertainty served as an actual or pretended barrier to co-operative action."

Now those who refused to co-operate on that account are finding their failure to co-operate bringing upon them the threat of compulsory co-operation just as has been so often predicted in these columns that it would be either self-government or governmental regulation.

The administration at Washington put forward the Interstate Compact as a possible solution. The industry believes with the public that President Hoover is anxious to find a remedy. The complexities of the situation as revealed at the recent conference show that it will not be an easy task.

The discussions at Colorado Springs displayed a wide divergence of opinion even within the industry as to facts. President Hoover, as an engineer, appreciates the necessity for getting at the fundamental facts of a situation.

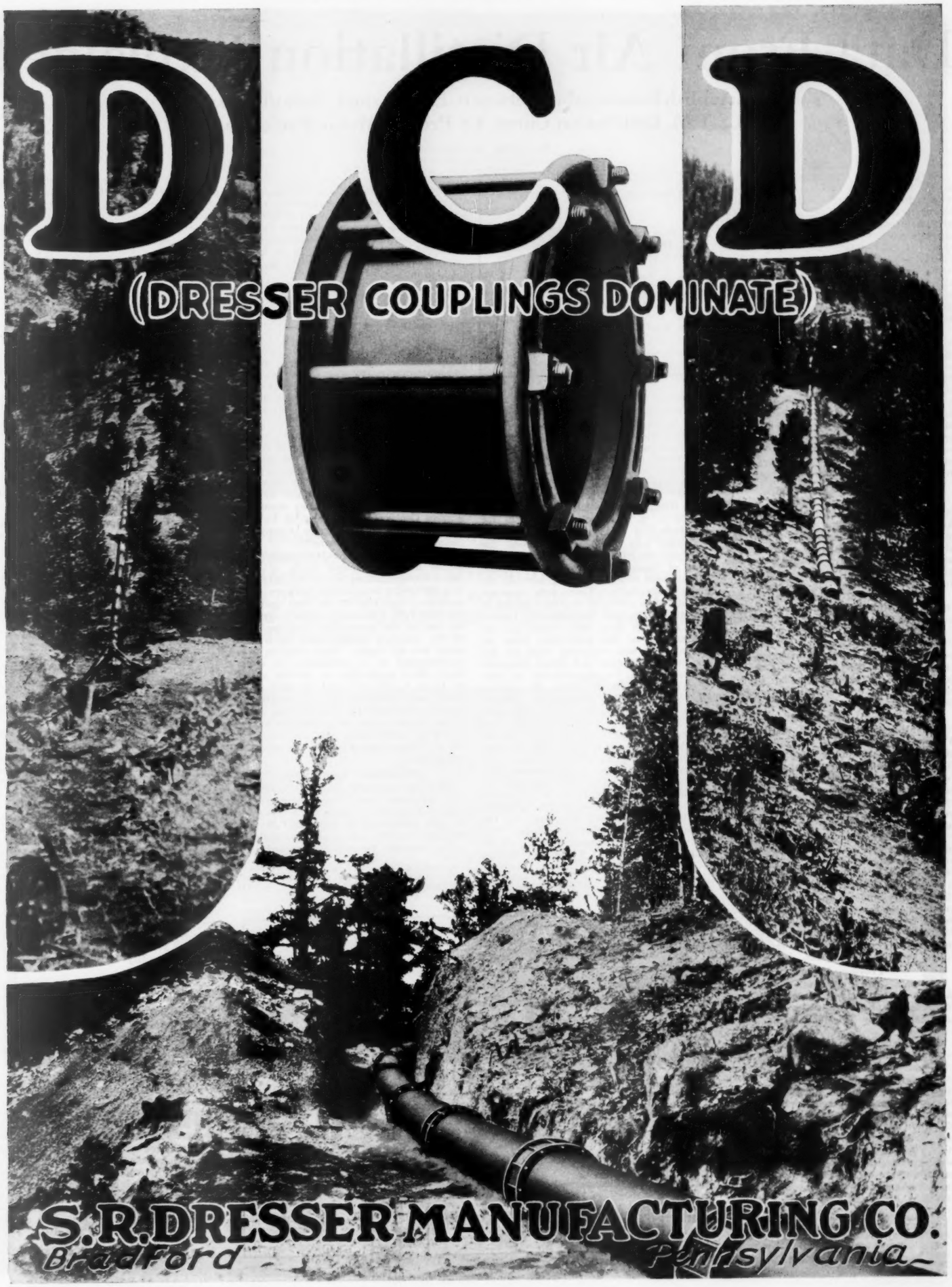
As a preliminary to any further study of the compact idea might it not be well to have a fact-finding commission named by the President to get the fundamentals of the problem?

This would bring future discussion within constructive bounds, eliminating mere assertion or prejudice.

It could furnish a standard of measurement for overproduction and with overproduction officially demonstrated, and the necessity for conservation of an irreplaceable national resource recognized, the commission could ask Congress for authority to approve co-operative agreements to curtail production within the limits of demand while the emergency lasted.

Congress has already modified the antitrust act by passing the Webb act to aid our exporters, permitting co-operation in the foreign trade not permitted at home. It should be no less practical in providing a modification for the protection of our natural resources against exhaustion.

If the Colorado Springs conference leads to some such definite effort it will have been well worth while.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Data From Air Distillation Explained

Establish Relationship Between Equilibrium Volatility and A.S.T.M. Distillation Curve To Predict Motor Performance

By George Granger Brown
University of Michigan*

Until very recently it was generally assumed that the volatility of a gasoline was represented by its endpoint. This, however, is not the case. Recent work at the Bureau of Standards as well as in our laboratories has clearly demonstrated that the total volatility or dewpoint is closely related to the 90 per cent point, and that under most conditions partial effective volatility is more important than total volatility. The endpoint itself has nothing whatever to do with motor performance.

When supplying a mixture of 12 to 1 air-fuel ratio at the carburetor end of the manifold a fuel must possess an effective volatility of at least 60 per cent to give barely satisfactory performance as under these conditions the cylinders will receive a 20 to 1 air-fuel ratio which is about as lean a mixture as can be exploded in an engine. For this reason a difference in effective volatility between 70 per cent vaporized and 100 per cent vaporized is of less practical importance than a difference between 50 and 65 per cent.

Equilibrium Volatility

Before discussing the effective volatility of fuels, which can be determined only by actual motor tests, we should consider equilibrium volatility as this is the standard of fuel volatility, which serves as a basis for effective volatility and our method of estimating engine performance from A.S.T.M. distillation characteristics.

Although generally used as a relative term, "volatility" designates such an important characteristic as to demand quantitative definition. In order that the term indicate a characteristic of a fuel independent of apparatus dimensions, the equilibrium volatility of a fuel is the per cent by weight vaporized under equilibrium conditions at specified temperature, pressure and air-fuel ratio.

The universal method for estimating fuel volatility is the A.S.T.M. distillation.[1] This is a batch process wherein 100 cc. of the original sample is placed in a flask and slowly vaporized, at a specified rate. The vapors are removed as fast as formed, and condensed. In such a process the quantity of each component present in the flask is constantly changing.

Quite a different process takes place in the carburetor and the manifold of an automobile engine. Here the fuel is introduced into a stream of air with which it flows through the manifold and into the engine cylinder. In this process the vapor is not removed as formed but remains in contact with the unvaporized fuel, and all the components of the original fuel are in contact throughout the entire vaporization process.

Previous Work

Although many attempts have been made to relate the two processes for both complete and partial vaporization, no general satisfactory relationship has been proposed.

Gruse[2] developed a direct method of determining the dewpoint of air-fuel mixtures and concluded that only an approximate relationship to the A.S.T.M. distillation could be obtained unless the entire distillation curve were considered in estimating the dewpoint. Whatmough, in England, reached much the same conclusions from his work on equilibrium solutions. In 1926 James[3] developed a method of continuous vaporization of the fuel in the absence of air, from which he calculated the air-distillation conditions by assuming an average molecular weight;

SUMMARY OF DR. BROWN'S WORK

Four articles have been prepared by Doctor Brown summarizing his work at the University of Michigan as part of the research program of the Natural Gasoline Association of America. The first of these appeared in The Oil and Gas Journal, February 28, 1929, the second on March 7 with this as the third. The fourth article will appear in a forthcoming issue.

and Sligh[4] described a continuous air-distillation apparatus in which partial volatility could be directly determined. Sligh reported data on several fuels over a considerable range of temperature at air-fuel ratios from 4 to 1 to 15 to 1. The dewpoints of these mixtures were found by extrapolation to 100 per cent vaporization. Because this apparatus seemed best fitted for a study of equilibrium volatility, it was accepted in 1926 for our work.

Cragoe and Eisinger[5] continued the work on the Sligh apparatus at the Bureau of Standards working at temperatures above 0 degree Centigrade (32 degrees Fahrenheit). These data were extrapolated to minus 40 degrees Centigrade (minus 40 degrees Fahrenheit). In our first report of May, 1927, important improvements in this apparatus were reported. It was equipped with an air conditioning system and direct ammonia expansion coil for vaporization at temperatures as low as minus 50 degrees Centigrade (minus 58 degrees Fahrenheit). Preliminary results on 26 fuels including blends of natural gasoline, and of benzol as high as 50 per cent, poorly fractionated and closely fractionated samples varying in volatility over wide ranges from aviation to 450 degrees Fahrenheit endpoint fuels, were reported for the air-fuel ratio of 12 to 1. The air-distillation was related to the A.S.T.M. distillation (corrected for loss) at the same per cent distilled by volume. The dewpoints were compared with the 85, 90 and 95 per cent A.S.T.M. distillation points, (corrected for loss) and the 90 per cent point found most accurate. The following equation was suggested as indicating the 12 to 1 dewpoint within the limits of plus or minus 6 degrees Fahrenheit (plus or minus 3 degrees Centigrade) except in extreme cases, such as benzol blends containing more than 35 per cent of benzol.

$$\text{Dewpoint } °F. = \frac{5}{7}(\text{A.S.T.M. 90\% in } °F. - 186)$$

In view of later developments, it is interesting to note that this empirical equation is that of a straight line passing through minus 462 degrees Fahrenheit, indicating that the ratio of the absolute temperatures of the dewpoint and 90 per cent A.S.T.M. distillation point is a constant.

Bridgeman[6] continued the work on the Sligh apparatus at the Bureau of Standards, found it to be affected by rate of feed, and extrapolated to zero rate of feed to determine equilibrium vaporization. These extrapolated values were in turn extrapolated from about minus 12 degrees Centigrade (10.4 degrees Fahrenheit) to minus 40 degrees Centigrade (minus 40 degrees Fahrenheit).

In later publications Bridgeman[7] presented a comprehensive study of dewpoint determinations of air-fuel mixtures and deduced a relationship between these dewpoints and the 90 per cent point of the A.S.T.M. distillation when corrected for loss on the assumption that the ratio of the absolute temperatures is a constant for all fuels. This relation was incorporated in a nomogram or alignment chart applicable to air-fuel ratios of 12 to 1, 16 to 1 and 20 to 1. This chart also indicates the air distillation temperature required to yield these ratios in the vapor phase as a function of the A.S.T.M. distillation temperature and per cent vaporized based on the same assumption.

Bridgeman's Conclusions

From his extensive investigation Bridgeman concludes that these "relations appear to hold with an accuracy comparable to that obtainable in the A.S.T.M. distillation." Comparison of the tabulated ratios reported, however, clearly indicates deviations of plus or minus 10 to 11 degrees Centigrade (Plus or minus 20 degrees Fahrenheit) in individual cases although the "average deviations" seldom exceed plus or minus 2 degrees Centigrade (plus or minus 3.5 degrees Fahrenheit).

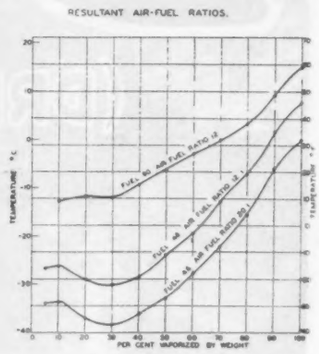

Figure 1—Resultant air-vapor ratios from Bridgeman's alignment chart.

As has been indicated[8] the air distillation apparatus does not give true equilibrium results. Even the method of extrapolation to zero rate used by Bridgeman, gives results in some cases incompatible with equilibrium conditions as indicated in Figure 1. In this figure the temperature required to form a 12 to 1 resultant, and a 20 to 1 resultant, air-vapor mixture under supposedly equilibrium conditions is plotted as a function of the per cent by weight of fuel vaporized as determined for Fuel 48 (Table 1) by Bridgeman's alignment chart.[9]

Fuel 48 is a commercial aviation fuel, and, although more volatile than any investigated by Bridgeman, is within the limits of his nomogram which covers all air distillation temperatures between minus 40 degrees Centigrade and plus 110 degrees Centigrade. As a further test a similar curve for Fuel 60 is also shown in Figure 1 obtained in the same manner from the nomogram. As indicated in Figure 1, this relationship indicates that Fuel 48 leaves a residue which becomes more volatile as from 10 to 30 per cent by weight is vaporized and thereafter less volatile. This is contrary to all experience and obviously impossible for equilibrium conditions. The same difficulty is also evident, but to a less degree, with the aviation Fuel 60 which is within the volatility range investigated by Bridgeman.

These tests clearly indicate that Bridgeman's data are in error at least below minus 10 degrees Centigrade (plus 14 degree Fahrenheit) due to incorrect extrapolation, to equilibrium conditions, to low temperatures not obtained in the air distillation apparatus, or to a combination of these or other errors.

Because of this fact and that only the range of 12 to 1 to 20 to 1 resultant air-fuel ratios is covered by the nomogram when the whole range is needed for an adequate study of engine performance, our work has been continued to include actual experimental measurements over the entire volatility range of commercial fuels, from natural gasoline to blending naphtha, over the temperature range minus 50 degrees to plus 110 degrees Centigrade (minus 58 degrees to plus 230 degrees

(Continued on Page 107)

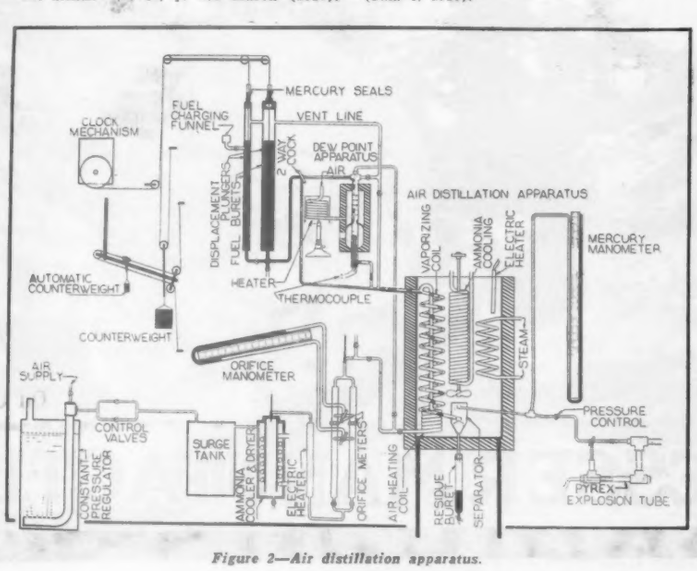

Figure 2—Air distillation apparatus.

*Professor of Chemical Engineering.

[1] D 86-27-A.S.T.M. Standards, page 378 (Part 2) 1927, Bureau of Mines Paper 323B

[2] The Oil and Gas Journal 22 page 86 (1924).

[3] Jr. S.A.E. Vol. 18 p. 501-7 (1926). Bull. A.P.I. Page 117 (April 12, 1926).

[4] Jr. S.A.E. Vol. 18, p. 393 April, (1926), Vol. 19, p. 151 Aug., (1926).

[5] Jr. S.A.E. Vol. 20, p. 353 March (1927).

[6] Jr. S.A.E. Vol. 22, p. 437 April, (1928).

[7] Jr. S.A.E. 23 page 478 (Nov. 1928); O. C. Bridgeman Bull. A.P.I., 10 No. 2, p. 124 (Jan. 3, 1929).

[8] Stevenson and Babor, Ind. and Eng. Chem. 19 p. 1,361 (Dec. 1927); O. C. Bridgeman, Jr. S.A.E., 22 p. 437 (Apr. 1928).

[9] Jr. S.A.E. 23, p. 478 (Nov. 1928).

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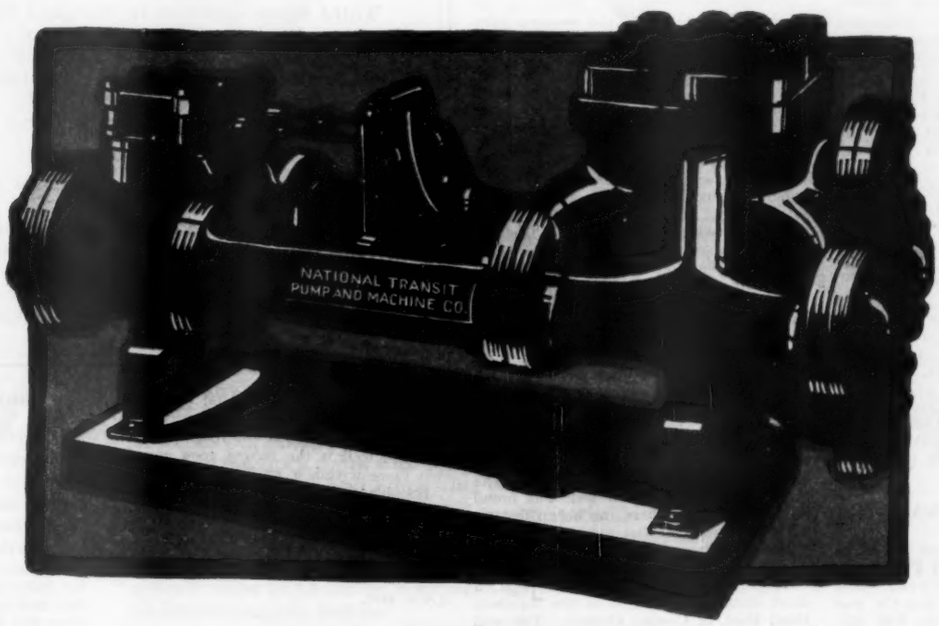

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STRICT ENFORCEMENT OF GAS LAW IN CALIFORNIA STARTS AUGUST 18

By L. P. Stockman

LOS ANGELES, Calif., June 18.—Fred Stevenot, director of Natural Resources of California, is preparing a formal notificiation to be sent to every oil and natural gas producer in the State of California stating that operators must arrange before August 18 next to eliminate waste of natural gas in the production of crude oil as provided under the recently enacted natural gas conservation measure. The notification might be considered somewhat as an ultimatum, as it is said the State will step in and enforce the law and compel operators to comply with its provisions.

The order probably will procure the desired results as compulsory regulation through enforcement of the state police powers is not regarded by the operators as especially desirable. Santa Fe Springs will be the first field to feel the effect of the new law if independent operators there continue to play a lone hand instead of co-operating in the matter of preventing waste. It seems probable Mr. Stevenot's ultimatum will stimulate the Santa Fe Springs gas conservation program which failed of accomplishment several months ago because a small minority of operators refused to join hands with the more progressive operators. It is believed now the 15 per cent minority which has held up the conservation program will ultimately accept the will of the majority and push the constructive movement through to a successful conclusion.

This plan contemplates repressuring the Belt Foix and Meyer horizons with surplus gas resulting from deep zone exploitation and will go a long way toward eliminating gas waste in the field and almost preclude state intervention. Santa Fe Springs is producing approximately 230,000 bbls. of crude oil and roughly about 400,000,000 feet of natural gas per day at the present time and while the greater part of this output is run through natural gasoline plants, about 200,000,000 feet of dry natural gas is being wasted daily. The production of this field would be cut back to well below 100,000 bbls. per day by a strict enforcement of the new gas conservation law and other flush fields would be similarly affected. The necessity of fostering mutual conservation among operators is therefore quite obvious.

High Spots in Field News

SOUTHWEST TEXAS

Carolina-Texas Field gives hope for deeper oil production.

CALIFORNIA

New order effective in California, curtailing 207,721 bbls. per day. New wells now permitted to flow unhampered only four days.

NEW MEXICO

Vacuum company well in Lea County making 5 bbls. an hour. Texas Production Co.'s No. 1 Beulah Lynch pumped at rate of 1,200 bbls. on short test.

WEST TEXAS

Tidal Oil Co.'s No. 1 University, Pecos County, encountered 250,000 feet of gas.

Two tests in area 3½ miles long indicate possible opening of new shallow pool in Pecos County.

GULF COAST

Fannette Dome has 1,000-bbl. well, Gulf Production Co.'s No. 11 Thomas, third producer in new area.

Gulf Production Co. later added another, No. 7 Bordages, which came in flowing an estimated 1,000 bbls.

NORTH TEXAS AND PANHANDLE

Production extended 2½ miles southeast of Butcher Pool, Cooke County.

Promise of new pool in Cooke County and another in western Shackelford County. Proving of new pool in Foard County increases activity there. Gray County, Panhandle, output increased.

KANSAS

Phillips Petroleum Co. finds oil in another wildcat in the western part of Ellis County, the third wildcat pool the company has opened in that county.

Sulphur water is strong indication Sedgwick Pool does not extend to east.

In Sumner County, Marland's semiwildcat swabs 500 bbls.

NORTH LOUISIANA

Third crater develops in Richland Parish gas field when Northern Louisiana Natural Gas Co.'s No. 1 Boykin blew in with estimated 75,000,000 feet, the largest in the field. Little hope of killing well. A 50,000,000-foot producer blew in on extreme southern edge of field.

Dixie district of Caddo Parish most active area in State.

OKLAHOMA

Production of eight producers in Asher June 18 was 9,150 bbls.

Sinclair Oil & Gas Co.'s No. 1 Kinter, Oklahoma County, still making between 40,000,000 and 50,000,000 feet of gas and 240 bbls. of gasoline in 24 hours.

Several good wells completed in southeastern extension of Earlsboro which was further extended.

Late News from the Field

OKLAHOMA

The production of the eight producing wells in the Asher area on Tuesday, June 18, was 9,150 bbls. The largest producer was the Prairie and Slick's No. 2 Laster, SE NE, Section 19-6-4. It made 2,420 bbls. Tom Slick Oil Co.'s No. 1 Wilsie, NE SE, Section 19-6-4, produced 2,155 bbls. of oil and about 250 bbls. of water. The water is increasing.

Sinclair Oil & Gas Co.'s No. 1 Kinter, NW cor. SE, Section 30-11-2w, Oklahoma County, is still making between 40,000,000 and 50,000,000 feet of wet gas at 6,188 feet. During the 24 hours ending at 7 a.m. June 17, the well had produced 240 bbls. of gasoline.

The Texas Company's No. 1 Jefferson (twin), NE SE SE, Section 23-5-7, Seminole County, in the Allen Pool, made 700 bbls. in 17 hours from the Wilcox sand at 4,199-4,203 feet.

In the southeast extension of the Earlsboro Pool several good wells have been completed in the past two weeks. It was further extended early in the present week by the Gypsy Oil Co.'s No. 1 Payne, NW NE SE, Section 18-9-6, Seminole County. This well had Wilcox sand at 4,271-75 feet, where it filled up 2,000 feet with oil at once. This extends the producing area of the pool one location to the southeast, and it is the fourth test in that area to show oil.

Magnolia Petroleum Co.'s No. 1 Anderson, NE NW SE, Section 18-9-6, Seminole County, was shot and in the next 24 hours the well produced 2,376 bbls. from the Wilcox at 4,358-70 feet.

NORTH LOUISIANA

SHREVEPORT, La., June 18.—The third crater in the Richland Parish gas field developed over the week-end while Northern Louisiana Natural Gas Co. was drilling No. 1 Boykin in the SW SE, Section 20-17-6, on the north edge of the field. Drill stem had twisted off and the crew was fishing when it blew in from 2,210 feet with an estimated 75,000,000 feet of gas. Heretofore the largest well in the field was Natural Gas & Fuel Co.'s No. 1 Thompson, in Section 21-16-6 which, estimated at 65,500,000 feet, also cratered. There was only 207 feet of 12-inch surface string and 901 feet of 8-inch in the hole and conservation department officials see little hope of killing the wild well into which derrick and rig has disappeared.

A coincidence was the successful completion of a 50,000,000-foot producer on the extreme southern edge of the field about the same time the crater well blew in. Southern Carbon Co.'s No. 1 Tegola, in the NW SE, Section 4-15-6, tested dry at 2,458 feet and was waiting orders when last scouted, and in the meantime had made a few feet more hole and blew in but having 6-inch cemented was safely closed in.

KANSAS

Phillips Petroleum Co. found oil in another wildcat test in the western part of Ellis County. This is the first wildcat test to find oil west of Hays, and the third wildcat pool that the Phillips Petroleum Co. has opened up in Ellis County in the past year. The new well is its No. 1 Johnson, SW NE, Section 9-13-19w. It filled up 600 feet in 45 minutes and in the first three hours it had 2,500 feet of oil in the hole. The owners estimate the well as good for 500 bbls. a day. The company owns 4,000 acres of leases around the test. The following companies also own checkerboard acreage in the block: Mid-Kansas, Texas, Barnsdall, Independent and Shaffer.

The finding of sulphur water in the Shell Petroleum Corp.'s No. 1 well in the NW NE SW, Section 14-26-2e, Sedgwick County, Kansas, is a strong indication that the pool does not extend to the east. The well is a quarter of a mile east of the Shell's Lygrisse well, the discovery well in the pool, which had an initial production of 2,000 bbls. a day, but which in the interest of conservation has been pinched in to 100 bbls. daily. The Simpson lime in the new well was found at 3,218-20 feet, where the hole filled up with sulphur water at once.

Marland Production Co. has completed a new well in the southeastern part of Sumner County. It is a semiwildcat, a short distance southwest of the Rainbow Bend Pool, in Cowley County. The well swabbed 560 bbls. the first 24 hours from the chat at 3,444-85 feet.

Hartman and others' No. 1 Campbell, NW SW SE, Section 21-28-1e, Sedgwick County, found a hole full of water in the chat at 3,109-22 feet. The test is being carried deeper and is drilling ahead.

GULF COAST

HOUSTON, Tex., June 18.—Gulf Production Co. added another well at its Fannette Dome, Jefferson County, when No. 7 Bordages came in flowing an estimated 1,000 bbls. of pipe line oil daily. Bottom of the hole is around 5,825 feet but screen was set in sand at approximately 5,660 feet. The oil tests 32 gravity. The well is the second good completion there within a week.

Humble Oil & Refining Co.'s No. 2 Hamner fee, DeWalt, Fort Bend County, was completed Tuesday, flowing 1,000 bbls. daily at 3,669 feet. This company's No. 1 Helmuth, Raccoon Bend, was completed Tuesday for 500 bbls. at 3,854 feet.

WEST AND NORTH TEXAS

FORT WORTH, Tex., June 18.—Tidal Oil Co.'s No. 1 University, SW, Section 16, Block 20, Pecos County, is drilling at 1,290 feet in brown lime. It encountered 250,000 feet of gas at 1,165-75 feet.

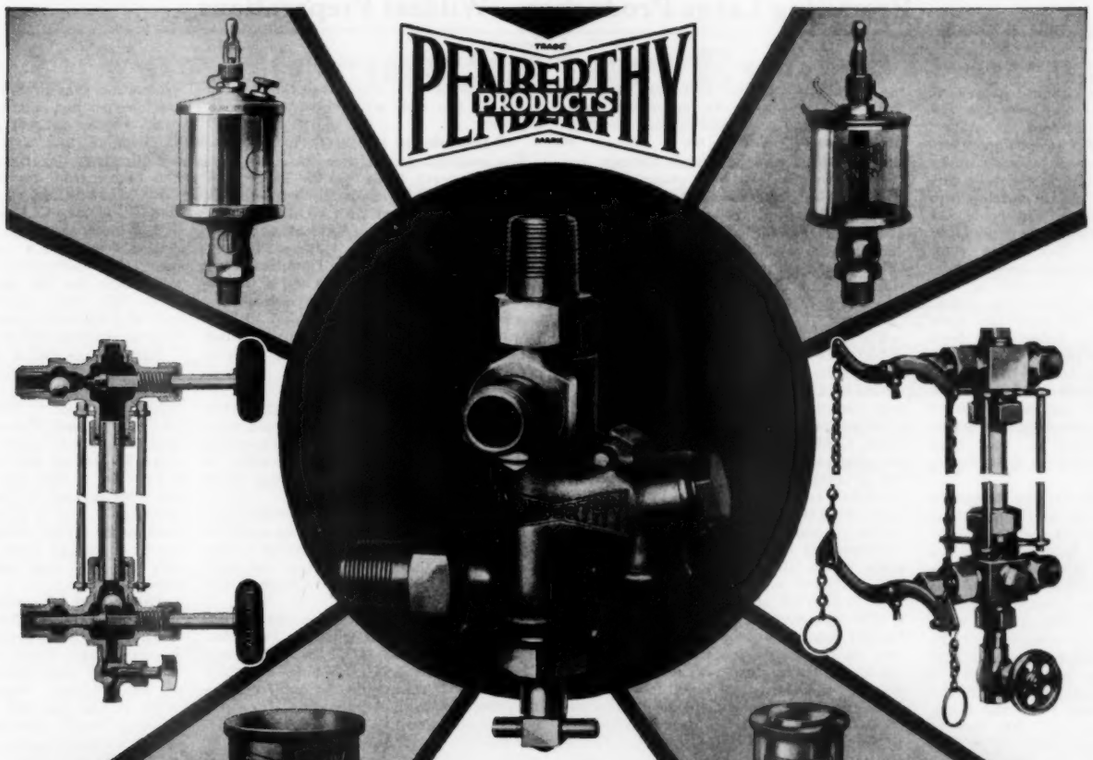
Fain-McGaha corporation's No. 1 Huggins, Abstract 982, NE part Section 9, S. H. Survey, bailed and cleaned out after standing 12 hours; oil filled up 900 feet; estimated 40-bbl. pumper. It extends production southeast of Butcher Pool, 2½ miles in Cooke County. Pay sand was from 1,181 to 1,189 feet.

OKLAHOMA CITY'S GAS

A meeting of representatives of companies operating in the Oklahoma City Field was held in Tulsa on Tuesday to discuss the question of the disposal of the gas production incidental to the drilling of wells in that territory. There has been some talk of a market for the gas for industrial purposes, but at the Tuesday meeting it was decided to wait until more was known of the potentiality of the field before taking any action. The operators, it is said, favor selling to the organized gas companies already doing business in the State if it comes to a question of putting the gas on the market.

ASK FREIGHT REFUND

The Standard Oil Co. of Indiana has filed suit against a number of railroads and the United States Government (I. C.C.) for the recovery of upwards of $100,000 claimed to be overcharges of freight rates published and on file by the railroad companies.



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Asher May Be of Small Dimensions

Oklahoma City Area the Only Present Development Promising Large Production. Wildcat Preparations

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

One of the most striking features of the week in Oklahoma has been the disappointment at Asher.

A lot of oil operators had been laboring under the impression that this area would develop into a large flush pool. At the present writing eight wells have been completed with a daily average production of less than 10,000 bbls. a day, and at least the same number of salt water holes have been drilled in. With the failure of the McCulloch wildcat in Section 28-6-4, Pottawatomie County, southeast of the main development, to make any oil, together with the dry holes to the north and northwest, the pool apparently will only cover about 160 acres with a possible extension to the south.

The Asher Townsite drilling campaign dod not develop into the hectic play that was forecast by many oil operators only a short while ago. Reports from the field indicate that the townsite operations are lagging and most of the operators that own lots or blocks are pursuing a watchful waiting policy. Several drilling wells are shut down. The deepest well on the townsite is that of Reynolds and others at 4,090 feet with a hole full of water. It is being abandoned. Hall and Briscoe's well on Block F of the Highland addition, first showed 300 feet of oil, but when it was tested the second time oil sprayed over the rig, showing considerable gas. The crew is landing 8-inch casing at 3,800 feet which is also the top of the Viola lime, while the total depth is 3,901 feet in lime and no water showing.

Another important strike was made last Sunday in the extension to the northwest of the old St. Louis Pool, by finding the Wilcox sand productive in the Independent Oil & Gas Co.'s No. 1 Barrows, SW NW NW, Section 1-7-4, Pottawatomie County. The top of the Wilcox sand in this test was at 4,237-42 feet where the well made 616 bbls. in 16 hours. The well is a direct offset east to the discovery well in Section 2-7-4, which found its production in the Hunton lime and is still producing from that formation.

The other areas in the State that give promise of developing large flush production are Oklahoma City, the territory between the St. Louis and Pearson Switch Pools, and Logan County.

Further knowledge of the potential production at Oklahoma City should be known in a short time and drilling wells are being watched with a great deal of interest by all the major companies. Some express an opinion that if the Oklahoma City area was out of the picture the second increase in crude oil prices would soon be a reality.

Very Active in Western Counties

Western Oklahoma is expected to get a bigger and more intensive play in the next few months, as the interest has been intensified since the recent increase in crude oil prices. Companies that have not taken part in the leasing play in the western counties are now becoming active, while those already in are adding to their holdings.

Checkerboarding of acreage in Woodward, Harper and Woods Counties continues very active. Some of the larger companies have recently taken blocks in Township 24-22w, northwestern Woodward County, and other blocks in Townships 17 and 18-23w-24w, Ellis County. Core drilling is part of the work that is being done to determine the best acreage and several such outfits are running in Township 24-19w, and are reported to be working south. At the present time there are eight geological parties working in Woodward County.

Unit Operation in Woods County

A new location has been announced and the rig is reported to be moving in for a unit test by four major companies each owning a quarter interest. It will be drilled by Sinclair Oil & Gas Co., Shaffer Oil & Refining Co., Independent Oil & Gas Co. and Peerless Oil & Gas Co. in the SW SE, Section 14-28-16w, Woods County.

The Sinclair Oil & Gas Co. has made a tentative location in the SW cor., Section 14-26-24w, Harper County, on a block of about 40,000 acres, which has been core drilled.

Magnolia Petroleum Co.'s No. 1 School Land, C SE NE, Section 22-5n-5e, Cimarron County, Oklahoma Panhandle, had dry granite wash at 3,991-94 feet; lime to 4,105 feet; going gack into granite wash at 4,105-25 feet with 1,000 feet of water in the hole. The test is a mile southwest of the well the Ramsey Petroleum Corp. drilled several years ago, which showed oil.

L. G. Hivick and others' No. 1 Davis, C NW NE, Section 4-11-26w, Roger Mills County, and near the Texas Panhandle line, has resumed operations and is drilling below 1,000 feet. The owners plan to carry the test to the 6,000-foot horizon if necessary. The wildcat block consists of about 5,000 acres in Roger Mills and Beckham Counties and joins the Texas state line. After being worked by geologists and geophysical machines of several of the major companies a structure similar to the one in Wheeler County, Texas, was found. The location lays along the north rim of the Anadarko Basin, and a log of the well will be watched with interest.

Blocking in Southern Areas

The southern part of the State has been quiet. Several large blocks have been taken and wildcat wells are expected to be started in a short time. Oil operators from Tulsa have taken a block of leases in Townships 3n and 4n, Ranges 23w and 24w, Greer and Harmon Counties, consisting of about 12,000 acres and a well is to be started at once. Other parties have blocked 5,000 acres in Sections 7 and 8-15w, Kiowa and Washita Counties and expect to drill a test 4,000 feet deep if necessary.

Oklahoma City Field

The most important area in the State at this time is around the Oklahoma City Field. All the major operators and everyone connected with the oil industry is watching the outcome of the deep wells in that area.

Most all of the deep drilling wells have cleaned up their fishing jobs and are now drilling ahead. More information is expected from that field during the next two weeks than has been available in the past.

Total recovery of oil from the Indian Territory Illuminating Oil Co.'s No. 1 fee, C SE SE, Section 24-11-3w, Oklahoma County, has been 776,885 bbls. from the time the well was drilled in on December 4, 1928, up to and including June 15. Daily production is still averaging around 2,500 bbls. of oil and about 500 bbls. of water. Few wells have had such a recovery in any other pool in Oklahoma, and it is all the more noteworthy since the production is coming from the Siliceous lime. It has been the history of lime production that production from that formation does not hold up in any such manner. Water did not appear in the well until about three months ago.

Following the recovery of the tools and bailer from the Sinclair Oil & Gas Co.'s No. 1 Stamper, NE SW NW, Section 30-11-2w, Oklahoma County, after bailing down to clean the hole, the crew drilled deeper to a total depth of 6,385 feet. The indications are that the well will reach the big pay horizon at 6,400 feet. The hole is still carrying 3,000 feet of fluid with traces of oil. It is the deepest drilling well in the field.

Mid-Kansas Oil & Gas Co. is drilling ahead on its two wells after cementing the casing and rigging up standard tools. No. 1 Fortson, C SW NE, Section 24-11-3w, Oklahoma County, after a test was made, failed to show oil but had considerable gas at the same total depth of 6,308 feet. The hole has been loaded with water and drilling resumed. Same company's No. 2 Fortson, C NW NE, Section 24-11-3w, Oklahoma County, was bailed down and failed to show any oil or gas at 6,275 feet and is now drilling ahead.

Interest on the west side of the field is centered in the Coline Oil Co.'s No. 1 Olds, C SE NW, Section 24-11-3w, Oklahoma County, which encountered a sand at 6,300-10 feet, with a slight showing of oil and gas. Since the Mid-Kansas wells to the east did not encounter this sand, it would indicate there is a thin streak of sand coming in from the west. It is the first time this sand has been encountered in the field.

Phillips Petroleum Co. and Tom Slick Oil Co.'s No. 1 Sudick, C NE NE, Section 8-10-2w, Cleveland County, 6 miles southeast of the discovery well in Oklahoma County, was drilling on June 15 at 6,461 feet in shale, with nothing showing.

Prairie Oil & Gas Co. and Tom Slick Oil Co.'s No. 1 Huddleston, SW SE, Section 19-11-2w, Oklahoma County, has started up after cementing the 6⅝-inch casing at 6,065 feet, by drilling the plugs at 6,102 feet.

New Pool in Seminole

During the past week a new pool has been added to the list in the Greater Seminole area. It is located directly east of the old Seminole Field and has been named East Seminole. Production from the entire Greater Seminole area for June 15 follows:

Pool—	Wells	Bbls.
Little River	340	78,176
Carr City	44	14,753
Maud	119	11,701
Mission	115	35,958
Bowlegs	303	34,672
Earlsboro	300	60,074
Seminole City	274	33,412
East Seminole	12	4,343
Searight	73	11,886
Total	1,580	284,974
St. Louis	363	89,694
Asher	8	9,575
Grand total	1,951	384,243

Core drilling is getting under way in Grady County as the play is working westward from the Seminole area. One of the major companies has a core drill working in 6n-6w, Grady County.

In Logan County

The first well in Logan County to be put on air is the Twin State Oil & Gas Co. and Crosby's No. 4 Schaefer, SW NW NW Section 20-19-4w. The well quit flowing and after being put on air produced 2,350 bbls. the first day.

The southwest trend of the Marshall Pool in Logan County is being watched just now by all major companies. The performance of the Shell Petroleum Corp.'s No. 8 McCully, SE SW SE Section 30-19-4w, is cause for part of this interest. The well is flowing 80 bbls. an

(Continued on Page 78)

WILDCAT OPERATIONS IN OKLAHOMA

(Descriptions are East and North unless marked otherwise)

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location—	Remarks:
Smith Bros.' No. 1 Forbes, SE cor. NW NW Sec. 12-27-11w	Shut down 385 ft.
Washoma Oil Co.'s No. 1 Acre, SW cor. NE Sec. 14-24-11w	Rig.

BECKHAM COUNTY

F. Coogan's No. 2 Holmesburg, SE NW Sec. 25-9-25w	Drlg. 1,100 ft.
C. & H. Petroleum Co.'s No. 1 Barnes, SW cor. NW NE Sec. 32-9-22w	Abandoned 3,514 ft.
Producers Exploration Co.'s No. 1 Seidell, SE cor. SW SW Sec. 17-9-22w	Shut down 2,402 ft.
Trees Oil Co.'s No. 1 Rodgers, SW cor. SW Sec. 30-8-25w	Underreaming 8-in. csg. 2,240 ft.
Carson and others' No. 1 Danby, SW cor. SE NE Sec. 20-8-22w	Shut down 1,465 ft.
Pferffel and others' No. 1-A Carter, NE cor. NE Sec. 35-9-22w	Shut down 1,500 ft.

BLAINE COUNTY

Lowen and others' No. 1 Unknown, NW cor. SW NW Sec. 27-16-11w	Spudded and shut down; renewing leases.
Washoma Oil Co. and others' No. 1 Phillips, C NW SW Sec. 13-19-10w	Shut down 1,365 ft.

CADDO COUNTY

Abernathy & Brown's No. 1 Horton, SE cor. Sec. 8-6-13w	Drlg. 535 ft.
J. B. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w	Shut down 150 ft.
W. J. Hartley's No. 1 Galbreath, SE cor. NW SE Sec. 29-5-12w	Shut down 3,394 ft.

CLEVELAND COUNTY

Daniels & LeWright's No. 1 Vandever, C SW Sec. 15-7-1w	Shut down 3,130 ft.
Phillips Pet. and T. B. Slick's No. 1 Sudick, NE cor. NE Sec. 8-10-2w	Drlg. 6,148 ft.

COAL COUNTY

Indian Territory Illuminating Oil Co.'s No. 1 Harris, SE NE Sec. 10-1-11e	Shut down 1,975 ft.
W. E. McGraw's No. 1 King, C SW NE Sec. 11-1-8e	Drlg. 65 ft.
Indian Territory Illuminating Oil Co.'s No. 1 Cook, SW cor. NW Sec. 10-1-11	Drlg. 7,310 ft.
J. S. Cosden's No. 1 Richardson, NW cor. NE NE Sec. 6-2-8	Fishing 1,855 ft.
McGinley & Sigler's No. 1 Willsey, NW cor. SE SE Sec. 7-2-8	Rig.
E. W. Whitney's No. 1 Brown, C SE NE Sec. 10-2-8	Shut down 202 ft.

COMANCHE COUNTY

Muse et al's No. 1 Cross, NW SW SW Sec. 4-1-9w	Drlg. 853 ft.
Green and others' No. 1 Wilson, C NE SW Sec. 14-1-12w	Shut down 4,055 ft.

CREEK COUNTY

Shaffer et al's No. 1 Moore, SW SE SE Sec. 3-18-9	Rig.

CUSTER COUNTY

W. E. Witt's No. 1 Wellman, C SE Sec. 1-14-14w	Rig and tools.

GARFIELD COUNTY

E. L. Love and others' No. 1 White, SE cor. NW Sec. 9-24-6w	Drlg. 4,845 ft.

(Continued on Page 174)

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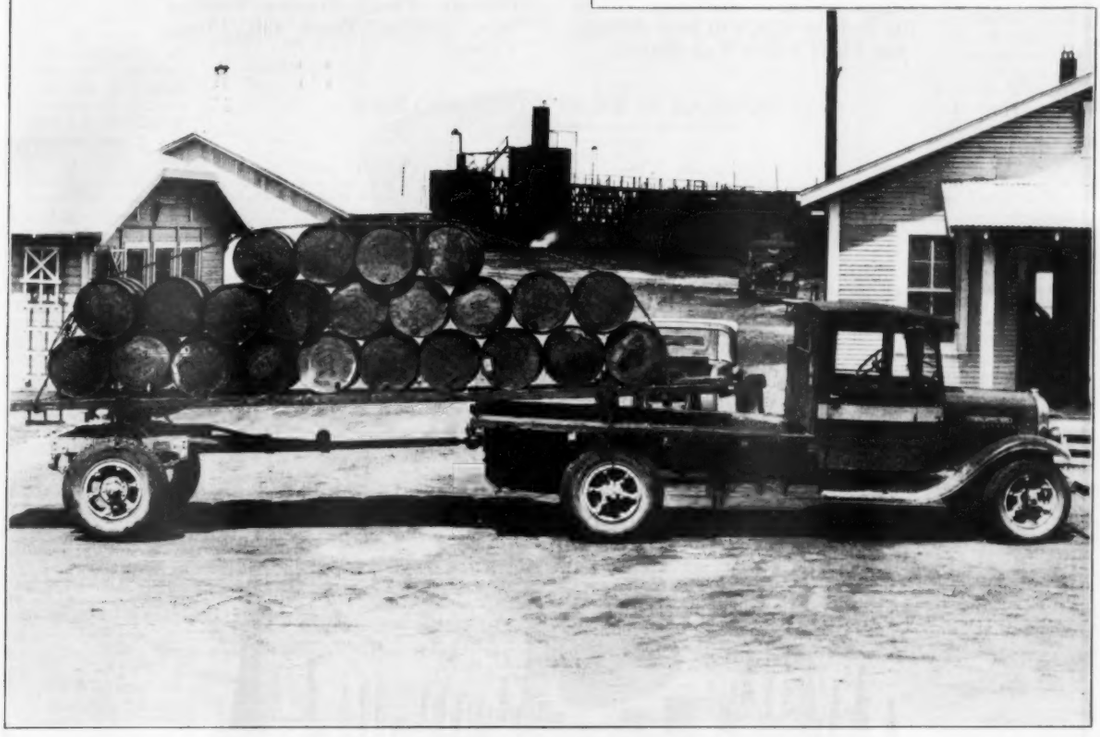

.:. [*Vez in a West Texas oil field, Vez treating plant in background.*] .:.

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Kansas Production Mounting Steadily

Averages 120,700 Bbls. a Day, With Sedgwick Averaging 35,000 Bbls. a Day. New Pool Indications in Sedgwick

By W. A. Spinney
Staff Correspondent, Kansas Fields

A wildcat well promises to open a pool in the eastern part of Sedgwick County, near Benton, Kans. The Lario Oil & Gas Co. on Friday of last week swabbed 65 bbls. of high gravity oil from its No. 1 Glancy, SW cor. Section 10-26-3e. The oil is coming from what is believed to be chat at 2,760-70 feet. Six-inch casing had been landed at 2,740 feet. The hole was full of oil when swabbing was started. It will be necessary to do some cleaning out and to build tankage before an actual gauge can be made. The well is 6 miles east of the Lygrisse Pool, which lies in Section 14-15-26-2e, Sedgwick County.

Production in Kansas in 1929 promises to exceed all previous years with the exception of the big year in 1918, when Butler and Greenwood Counties were at their height. At the beginning of the year the estimated daily production was 98,145 bbls. for the entire State, while the estimated daily average production the second week in June was almost 120,710 bbls., a gain of over 22,000 bbls. There is good likelihood that Kansas will produce more than 40,000,000 bbls. this year. It will be the second year in oil history in which the State's production amounted to over 40,000,000 bbls. In 1918 the production was in excess of 45,000,000 bbls.

Sedgwick County alone is averaging better than 35,000 bbls. daily and is showing an increase almost every week. While the county is furnishing a major part of the increase the surplus will offset the slow decline in the older areas.

Kansas operators are still prospecting for new oil areas. Wildcatting in Kansas is at its height and many predict that additional pools will be discovered in western Kansas. The discovery of oil and gas in wildcat tests in Barber, Clark, Ellis, Harvey, McPherson, Rice, Russell, Rush, Ness, Stevens, Sumner and Trego Counties in recent months has lent encouragement to other oil operators.

Oil from the Gypsy Oil Co.'s No. 1 Williams in Section 16-35-3w, Sumner County, is being shipped out in tank cars at the rate of 250 tank cars a day. The well is producing around 1,175 bbls. daily and is the largest flowing well in the State at the time this is written. It is producing from the Wilcox sand at 4,768-83 feet. The same company is drilling two offsets while the Amerada Petroleum Corp. is drilling the other. The west offset is Gypsy Oil Co.'s No. 1 Davidson drilling at 2,225 feet, and the south offset, No. 1 Gibson, in Grant County, Oklahoma, is drilling at 2,035 feet. The Amerada Petroleum Corp.'s No. 1 Clark, a diagonal offset to the producer is plugging back to straighten the hole after it had drifted off the perpendicular. The total depth is 1,604 feet.

Gypsy Oil Co. and Blankinship Petroleum Corp.'s No. 1 Robeck, Section 27-34-4w, Sumner County, is drilling at 3,760 feet, the nearest to completion in the area.

Explore Southeastern Kansas

On a large block of leases in the vicinity of Chetopa, Labette County, in the southeastern part of Kansas, Tom Slick Oil Co. will drill some test wells. In several tests near Chetopa, mine operators of the Ottawa County zinc and lead mining field have found small quantities of oil and gas in the numerous holes drilled in quest of minerals in that area, although not in quantities large enough to justify commercial exploration.

An 8,000-foot test is to be drilled in the Ashland and Protection district of Clark County, in the southwestern part of the State, by the Watchorn Oil & Gas Co., which has already invested half a million dollars in dry hole in efforts to open an oil field in that part of Kansas. It is estimated that the cost of this wildcat well will be in the neighborhood of $175,000. The location will be near Sitka, about 4 miles from several dry holes drilled by the same company.

Blankinship Petroleum Co. and others' No. 1 Headrick, SW NE Section 16-32-4, Cowley County, is near the sand and will soon tell whether the State Pool will be extended a half mile to the southwest from the present production. At the last report the well was drilling at 3,200 feet, with prospects of finding siliceous lime in the next 50 or 75 feet, depending on the way the structure is running. Considerable interest is attached to this test because of its bearing on future development, and because it is the only test in the field nearing the sand.

Another Cowley County test a lot of operators are watching is the Lewis Production Co.'s No. 1 Sitton, SW NW Section 30-31-6. A few weeks ago the test drilled the sand at 2,905-40 feet, and after a shot the rig burned before a production test could be made. The rig has been rebuilt and the tools run in. It was found the casing had been damaged by the shot. So far efforts to straighten up the casing have been unsuccessful. The well has been estimated from 200 to 500 bbls. and it is slopping over as the fishing job continues. The well is a half mile northwest of the present production in the Drury Pool, opened up about three years ago.

Scattered New Locations

New locations in the State are scattered in several counties. Youker and others' are building a rig for No. 1 Riffell, NW SW SE Section 10-17-4, Marion County. Theta Oil Co. has staked a location for No. 1 Walker, NE SE Section 34-31-10e, Elk County. George P. Dickey is moving in a rig for No. 2 Kratz, SW NW NW Section 26-34-2e, Sumner County, an offset to the Harold Petroleum Corp. Transcontinental Oil Co. has made locations for two new tests on its Pixlee property. No. 5 has been located in the C NW NW Section 10-22-10, Greenwood County, and No. 6 in the SE NW NE Section 10-22-10, Greenwood County. The Texas Company is also starting two new tests in the same county. Its No. 4-C Edwards has been located in the NW SW SE Section 21-23-11 and No. 5-C Edwards in SE NW SE Section 21-23-11, both in Greenwood County. The same company has built a new rig for No. 1 Blood, NW S half SW Section 21-28-1e, Sedgwick County.

Sinclair Oil & Gas Co. and others have purchased the wildcat test of Ted Washabaugh and others, including the 240 acres adjoining the 80-acre tract on which the test is being drilled. It is No. 1 Harrison, NW NE Section 3-26-2w, Sedgwick County. Washabaugh retains 160 acres in the original block. Two of his tracts are north and one south of the well.

Ted Washabaugh and others' McPherson County wildcat discovery test, which is showing a good quantity of oil, has resumed operations after being shut down on account of high water. The test has been fishing for collapsed casing at 3,301-03 feet. The bailer was also lost in the hole and is yet to be fished out or drilled up. The well has not been materially damaged.

A New Deep Sand

A new deep sand has been uncovered in the Latta Pool, between Clearwater and Conway Springs, in northern Sumner County, by the Champlin Refining Co. in No. 1 Love, NE SW Section 9-30-2w. It had the top at 3,202 feet, where the test made one flow. The well had previously been producing at 3,000 feet. Some estimate the showing at 75 to 100 bbls. The pool has a number of wells that are yielding from 12 to 40 bbls. a day from the 3,000-foot horizon.

Two more wildcat locations have been made in Dickinson County, in addition to several that are now drilling. B. R. Cress and Frank Haucke have made a location in the NE cor. Section 12-15-2e. This location was made after the block had been core drilled and the magnetometer had surveyed the 14,000 acres. The block is in the south central part of the county and several large oil companies have blocks adjoining.

Hiatt & Durham have taken a large block of leases on the south of the above acreage on which they are moving in a rig in Section 17-16-2e, Dickinson County. Several of the larger companies have bought acreage in both of the above blocks.

New Wells in Valley Center

Two more oil wells were added to the Valley Center Pool during the week. They are both estimated to be in the 500-bbl. class. The Tidal Oil Co.'s No. 3 Scherger, SW NW, Section 6-26-1, Sedgwick County, had the top of the dolomite at 3,368-71 feet. The hole filled up with oil in an hour and a half. The well is also to be given a swabbing test, and will be deepened.

Bu-Vi-Bar Petroleum Corp. and others' No. 4-B Bright, SE SW SW, Section 6-26-1e, Sedgwick County, got the top of the dolomite at 3,365-75 feet and the hole filled up 2,000 feet. The well is being swabbed.

The Saline County test will be drilled deeper by Denver operators, and will be completed to the contract depth. Kinney-Coastal Oil Co. started this test last April. It is No. 1 Hughes, NE cor., Section 20-13-4w. After being shut down for some time it was taken over by J. R. Macon, E. T. Crittenden and L. G. Gebhard, who are expected to resume operations this week. The deepest drilling well

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WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless otherwise marked)

Company, farm and location—	Remarks:
BARBER COUNTY	
Skelly Oil Co.'s No. 1 Temple Ranch, Sec. 13-34-15w	Rig.
Barbara Oil Co.'s No. 1 Angel, NW cor. NE Sec. 14-33-13w	Drlg. 3,635 ft.
Robertson et al's No. 1 Powell, SE cor. SE Sec. 11-32-10w	Rig on ground.
Allison & Fitzwilliams' No. 1 Morrisse, C NW SE SE Sec. 9-30-12w	Drlg. 3,200 ft.
Rolland et al's No. 1 Pickens, NE cor. NW NE Sec. 27-30-14w	Water 4,695-4,718 ft.; hole full water; abandoned.
BARTON COUNTY	
Gobel & Bending's No. 1 Bartlett, SW cor. SW Sec. 28-17-15w	Drlg. 1,190 ft.
Everett & Wiley's No. 1 Ward, NW cor. SW Sec. 12-20-13w	Shut down 3,948 ft.
BUTLER COUNTY	
White Eagle's No. 1 Bachelder, SW cor. Sec. 17-25-3e	Drlg. 1,045 ft.
Crawford et al's No. 1 Thompson, NW cor. SW Sec. 2-24-3e	Shut down 200 ft.
Aladdin Petroleum Co.'s No. 1 Bronsenger, NE cor. NE SW Sec. 24-27-3	Drlg. 600 ft.
Shell Petroleum Corp.'s No. 1 Thiesstin, C SE SW SE Sec. 10-24-3	Drlg. 2,830 ft.
Smith & Ash's No. 1 Donnelly, NE cor. NE Sec. 8-24-6	Drlg. 3,003 ft.; water.
CHASE COUNTY	
Marland Prod. Co.'s No. 1 fee, SW NE Sec. 8-31-8e	Fishing 2,125 ft.
COWLEY COUNTY	
J. B. Markley's No. 1 Tatum, SE cor. SW Sec. 11-31-6	Shut down 520 ft.
DICKINSON COUNTY	
Johnson's No. 1 Doetwiler, SW NE NW, Sec. 32-16-4e	Underreaming 2,775 ft.
Prairie Oil & Gas Co.'s No. 1 Morgan, NW cor. Sec. 26-16-3e	Drlg. 1,135 ft.
Milmac's No. 1 Buhler, SW NE Sec. 28-16-4e	Drlg. 2,085 ft.
ELLIS COUNTY	
T. C. Johnson's No. 1 Robbins, SW NW Sec. 15-14-16w	Drlg. 2,900 ft.
John Brown's No. 1 Gestner, SE cor. SW NE Sec. 13-13-18w	Drlg. 2,930 ft.
Rush Oil Co.'s No. 1 Gatewood, NW cor. NW Sec. 4-15-20w	Drlg. 3,069 ft.
Finney & Weiner's No. 1 Freeman, SE cor. SW Sec. 24-15-20w	Spudded and shut down.
Phillips Pet. Co.'s No. 1 Johnson, SW cor. NE Sec. 9-13-19w	Drlg. 3,400 ft.
Phillips Pet. Co.'s No. 1 Dechant, NE SE Sec. 12-13-16w	Hole full water 3,390-94 ft.; total depth 3,440 ft.; abandoned.
Phillips Pet. Co.'s No. 1 Schneider, NW cor. Sec. 20-12-17w	Drlg. 3,429-39 ft.; 108 bbls. in 3 hrs.; shut down.
Burger et al's No. 1 Hadley, SW cor. SW NW Sec. 20-11-17w	Drlg. 1,325 ft.
John Brown No. 1 Company's No. 1 Gestner, SE cor. SW NE Sec. 13-13-18w	Drlg. 2,930 ft.
ELLSWORTH COUNTY	
The Texas Company's No. 1 Sherman, NE SW Sec. 16-17-6w	Rig.
EDWARDS COUNTY	
Amerada & Wilcox's No. 1 Teansil, C NW NW Sec. 32-25-19w	Abandoned 5,195 ft.
British American Oil Co.'s No. 1 McCarty, NE cor. NW Sec. 31-25-17w	Sand 4,666-70 ft; 14,000,000 ft. gas; shut down.
GEARY COUNTY	
Wright et al's No. 1 Younker, NW cor. NE Sec. 17-11-5	Fishing 2,170 ft.
GRAHAM COUNTY	
Gulf Coast Oil Co.'s No. 1 Johnson, C S half Sec. 27-8-25w	Shut down 3,600 ft.
HARPER COUNTY	
Amerada Pet. Corp.'s No. 1 Mendiville, SE SE Sec. 24-34-6w	Hole full water 5,368-75 ft.; 5,452 ft. abandoned.
Independent & Reserve Oil Co.'s No. 1 Moulds, C NE Sec. 7-24-1w	Drlg. 865 ft.
HARVEY COUNTY	
Deering-Marshall's No. 1 Dick, Sec. 4-25-2w	Fishing 2,345 ft.
McCulloch et al's No. 1 Prouty, NW cor. SW Sec. 3-23-1w	Drlg. 328 ft.

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Dixie District of Caddo Most Active

Monroe and Richland Retain Lead on Combined Oil and Gas Operations. Mount Holly Area Down to Two

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., June 17.—In six weeks' time, most of which was consumed in preliminary work, the Dixie district of Caddo Parish, 12 miles north of Shreveport, has become the most active oil area in this division, though the Monroe and Richland gas areas retain their front rank position taking oil and gas operations together. Since the discovery well of the Dixie area was formally listed as a completion on April 30 there have been 10 completions and there are 15 operations under way, from rigs to wells waiting on pumping equipment. Four of the completions have been producers with a total initial production of 3,778 bbls. and production to date amounts to 18,334 bbls., the apparent discrepancy between the two figures being due to the rapid rate at which the producers fall off from their initial gauge. For instance, Gulf Refining Co.'s big No. 1 Oden in Section 18-19-14, completed June 6 flowing 3,285 bbls. through drill stem, has dropped to 1,041 bbls. on last 24-hour gauge. It is flowing through separator and making between 3,500,000 and 4,000,000 feet of gas.

Of the two other oil producing areas where there is any drilling activity, the Mount Holly district of Ouachita County, Arkansas, has sunk to two wells under way and Champagnolle has eight.

Including all operations, locations, rigs, wells actually drilling and wells shut down there are 42 in the Monroe district and 25 in Richland. Seven new locations were made in the Monroe district during the week and one in Richland.

Richland and Monroe

One of this week's completions in Richland, S. R. Humble's No. 1 Etheridge, in Section 28-17-6, on the north edge of the field, showed a higher initial rock pressure than most recent completions have gauged. It came in from 2,450 feet with 48,816,000 feet of gas at 1,075 pounds. Location for two other tests, Carbon Gas Co.'s No. 1 Roberts, Section 21-16-6, and No. 2 W. T. Sartor, Section 16-16-6, were abandoned. In the Monroe district, Peerless Carbon Co. completed No. 5 Moore, Section 51-20-4, Ouachita County, gauging 8,297,000 feet at 725 pounds, total depth 2,142 feet.

Magnolia Petroleum Co. is planning a deep hole for the Monroe district in No. 2 U. S. in Section 30-19-5, Ouachita Parish. It tested 736,000 feet of gas at 275 pounds at 2,225 feet the other day and is drilling on. The company has added 1,000 acres in fee to its Monroe holdings, the property being in Township 18-3, Ouachita Parish.

Magnolia's deep hole in Cotton Valley is running Dixie Oil Co.'s No. 92 Dillon in Caddo a close race for footage with the latter having the edge on it so far as results below known producing levels is concerned. Magnolia's No. 1 McCook & Hibbler, in Section 22-21-10, drilling red shale at 6,023 feet is the deepest test Cotton Valley has had and it had one show of gas at 5,450 feet—below the previous deepest production— around 4,700 feet—whereas Dixie Oil Co.'s No. 92 Dillon, Section 13-21-15, Caddo, had a regular blow out at 6,124 feet and is now drilling lime and pyrites at 6,158 feet. The deep test in Homer Field, started last December and shut down at 700 feet since the middle of January, has been refinanced to go 4,500 feet it is reported, and has resumed drilling. It is Oaks and others' No. 1 Richardson in Section 19-21-7. Standard Oil Co.'s No. 22-B Bodcaw, Section 28-21-10, Cotton Valley, will probably be a deep test to 4,700 feet. It is located on acreage transferred from the Humble Oil & Refining Co. in the recent trade and the first well the Standard has started on the acquired properties.

Shongaloo district of Webster Parish has three wells producing or capable of producing. The two producing are pumping 90 bbls. with 20 bbls. of water and the third is standing about 800 feet in fluid 50 per cent oil. Ohio Oil Co.'s No. 1 Haynes, Section 30-23-9, is pumping 60 bbls. with 10 bbls. of water and Clark and others' No. 2 Mayfield, Section 20-23-9, is making 30 bbls. with the same amount of water. The third well is Magnolia Petroleum Co.'s No. 1 Adkins, Section 4-22-9.

Zwolle District

Unlike the Dixie district producers, the two wells in the Zwolle district of Sabine Parish have increased from their initial gauge instead of decreasing. For the first 10 days of June they ran 770 bbls., an average of 77 bbls., while their initial production was 60 bbls. R. L. Gay's No. 2 Bowman-Hicks started with 50 bbls. and is averaging 58 bbls., according to the average cited and No. 3 on the same lease began with 10 bbls. and is running 19 bbls.

Champagnolle had a fairly good well in Pure Oil Co.'s No. 2 Nash in Section 7-17-13, midway between production in the east and west corners of the south end of the eastern extension. The first 22 hours the well flowed 705 bbls. of clean oil from 5 feet of sand through 3-inch choke, total depth 3,040 feet. Ohio Oil Co.'s No. 1 Nash in the same part of the field showed for 8,000,000 feet on test in sand from 3,077-86 feet and cemented 6⅝-inch at 3,079 feet. Ohio's No. 1 E. Raulston in the NE cor. SW SE, Section 12-17-14, a quarter mile extension west, was completed making 360 bbls. by heads from 32 feet of broken sand, total depth 3,041 feet. Oilwell Corp. abandoned No. 3-C Perdue in Section 9-17-14, was abandoned as a salt water hole at 3,310 feet after several attempts to make both a gas well and a producer of it at shallower levels down to 2,700 feet had failed. Rovenger Oil Corp.'s No. 2-B Perdue, also in Section 9, was more successful, making 5,000,000 feet of gas and 150 bbls. of cut oil from 12 feet of sand, total depth 2,795 feet. Standard Oil Co. abandoned derrick it had up for No. 6 Goodwin in Section 36-17-16, in the El Dorado district. Simms Oil Co.'s No. 11 Hildebrandt, Section 28-15-15, Ouachita County, Smackover district, which had been perforated and plugged back twice from 3,140 feet, was finished at 2,060 feet pumping 250 bbls. of fluid of which 25 bbls. is oil.

Standard Oil Co. abandoned No. 4 Hunter, Section 17-19-14, Dixie district of Caddo Parish, as a dry hole at 2,616 feet, demonstrating again the uncertainties and lenticular nature of that area, since it offsets producers but found no sand all the way down. Magnolia Petroleum Co. abandoned No. 1 B. M. Cook, Section 2-22-11, Sarepta district of Webster Parish, as a salt water test at 2,710 feet, cemented back from 3,215 feet.

Champagnolle

Champagnolle, with 115 wells producing, produced only 7,430 bbls. this week. Pipe line runs averaged 7,345 bbls., a decline of 655 bbls. from last week's runs. Daily average production of the Shreveport division amounted to 106,700 bbls., an increase of 890 bbls. which reflects the effect of the four wells in the Dixie district of Caddo. The increase in Caddo light oil runs totaling 9,865 bbls. from this cause was 1,735 bbls. and Louisiana's total daily average of 36,735 bbls. was a gain of 1,815 bbls. over last week. Urania runs of 5,980 bbls. increased 170 bbls. and Cotton Valley gained 60 bbls. Pleasant Hill and Bellevue districts also showed slight increases. All Arkansas Pools save Stephens fell off and the Stephens increase was not enough to cut much figure. Arkansas pools ran an average of 69,965 bbls., a decline of 925 bbls. Smackover heavy was 120 bbls. under last week's average and for the first time since it has been measured in four figures. Nevada County Pool shipments dropped back into three figures, this week's average of 930 bbls. being 120 bbls. less than last week.

Production Gain

Runs from the several pools were:

Louisiana

Caddo, light	9,865
Caddo, heavy	3,115
Homer	3,930
Haynesville	5,210
DeSoto-Red River	3,910
Elm Grove	600
Bellevue	620
Cotton Valley	2,790
Urania	5,980
Pleasant Hill	465
Sarepta-Cartersville	250
Total	36,735

Arkansas

El Dorado	4,610
Smackover, light	6,040
Smackover, heavy	48,560
Stephens	1,040
Nevada County	930
Lisbon	1,340
Champagnolle	7,345
Bradley	100
Total	69,965
Both states	106,700
Last week	105,810
Increase	890

NORTH LOUISIANA

Bossier Parish

Delaware—Louisiana Development Co. is drilling at 3,808 feet in the red beds on No. 4 Bollinger, Section 38-23-11, Cartersville district.

Caddo Parish

Greenwood — Eastern Carbon Co. is fishing for 4½-inch liner in No. 4 Bryson, Section 8-17-16, total depth 2,773 feet.

Dixie—Gold & Sklar's No. 1 Hunter, Section 17-19-14, formerly reported as No. 1 Henderson, set 103 feet of 10-inch, topped the Nacatoch at 820 feet and is drilling at 1,350 feet. Gulf Refining Co.'s No. 2 Oden, Section 18-19-14, is waiting on standard rig to pump with 800 feet of oil in the hole, total depth 2,408 feet; No. 3 in the same section is rigging up, and No. 4 is a location 990 feet south and west NE cor., same section.

Ohio Oil Co.'s No. 1 Hunter, Section 17-19-14, set 6⅝-inch casing at 2,375 feet, total depth 2,405 feet. Palmer Corp.'s No. 1 Hunter, 330 feet north and east SW cor., Section 8-19-14, is building derrick, and No. 2 is a location 990 feet east and 330 feet north SW cor., same section. Walter Ray has derrick pattern on location for No. 1 Hunter in Section 8-19-14, no check. Standard Oil Co. made location 990 feet west and 225 feet north SE cor., Section 8-19-14, for No. 2 Henderson; No. 2 Hunter, Section 8-19-14, is waiting on standard rig with 2,000 feet of oil in the hole, total depth 2,416 feet; No. 2 Oden is a derrick 990 feet west and 330 feet south NE cor. SE NE. Section 18-19-14.

Hosston—Bayou State Oil Co. has derrick up for No. 17 Levee Board, 250

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PLAN CORE DRILLING CAMPAIGN FOR ALABAMA AND MISSISSIPPI

By D. H. Bancroft

SHREVEPORT La., June 17.—Concentration of a corps of geologists and paleontologists at Jeridian headquarters presages an extensive campaign of core drilling on the Hatchetigbee anticline in southeastern Alabama by the Gulf Refining Co. to be followed immediately upon its completion by similar activities on the Jackson structure in Hinds and Rankin Counties, Mississippi, in both of which districts the Gulf has holdings of large dimensions, particularly on the Alabama structure.

In connection with the Gulf's activities results of geological work on the anticline by The Texas Company also is interesting. The company's geologists have worked out two "highs," one centering around Section 20-9-2w, and the other around Section 3-8-1e, Choctaw County. Also of interest is the report that Fair, Robinson & Greer of Shreveport, who have drilled one well on the anticline since the recent interest developed, have financed two more for which locations are to be made during the next two weeks, both in Choctaw County. Their first well, No. 1 Long-Bell, in Section 28-10-4w, Choctaw County, was abandoned at around 4,000 feet as a salt water test but is claimed to have taken a saturated core at or a few feet above the bottom. There was only two joints of surface pipe in the hole and no more pipe was set to test the showing in the core, it is explained, for the reason that these other two wells were in prospect and they did not want to take any chances on lost tools; also for the further reason that, failing to get as good a show in either they plan to come back to the first, set casing and test. Chances are that should either of the new wells show up as well or better, this will be done anyhow.

Briggs & Knapp's No. 1 Wefel, Section 25-12-14, Lamar County, in the northwestern part of the state, is drilling around 500 feet after being shut down for repairs. A report on the oil and gas possibilities of Alabama that has been in preparation for the last two years will be ready for distribution some time next month, it is reported.

Mississippi Operations

Arkansas Natural Gas Co. completed a long fishing job on No. 1 Rye, Section 22-15-17, Monroe County, Mississippi, and is reaming to run 5⅜-inch casing, total depth 3,376 feet. Amory Natural Gas Co. found casing cemented 80 feet off bottom in No. 1 Carter, Section 7-13-7, but went on without testing casing seat and are coring at 2,381 feet, 17 feet below where they thought they had landed the pipe.

Amory Development Co.'s No. 1 Bourland, Section 2-13-19, Monroe County, has resumed fishing for 12 joints of casing and packer, total depth 2,478 feet.

Meridian Oil & Gas Co.'s No. 1 Hauser, Section 33-8-18, Lauderdale County, cored sand at 1,659 feet. Oscar Brown, who has been drilling in Washington County, Alabama, has taken over the Hennessey and others' No. 1 Riverside in Section 23-16-5, Hinds County, shut down at 1,100 feet for the last several weeks, and will drill to 2,500 feet.

The new Dixie district of Caddo Parish, 10 miles north of Shreveport, with

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"Rolls Royce," says the radiator emblem—and what a world of meaning the message carries!

"Cementing by Halliburton," says the well's specifications, and again much is said in few words—permanent insurance against shifting formations, migration of fluids and intrusion of upper water; as long as the well is in existence, the most thorough protection that equipment, experience and engineering skill can provide.

HALLIBURTON OIL WELL CEMENTING CO.
Duncan, Oklahoma

Fannette Dome Has 1,000 Barrel Well

Third Producer in That New Area. Big Gas and a Good Oil Showing in Test in St. Landry Parish, Louisiana

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Texas, June 17.—Reopening of production at Fannette Dome, Jefferson County, and the finding of oil in the second test on the Point Barre Dome, St. Landry Parish, Louisiana, were among the most important field developments of the Gulf Coast the past week. This new production was augmented by a string of good wells completed in several of the older coastal fields which was reflected in production figures by a gain of 4,402 bbls. in the daily average.

At Fannette, Gulf Production Co.'s No. 11 Thomas was brought in Thursday flowing an estimated 1,000 bbls. daily of pipeline oil through a quarter-inch choke from sand at 5,665 feet. This oil tested 33 gravity and pressure of the well was 1,400 pounds. The well restored production at Fannette, which has been dead for several weeks since the Gulf's No. 2 Burrell quit flowing.

No. 11 is the third well which has been completed at Fannette although it might be considered the second as the first, No. 6-A Bordages, made a small pumper only for a comparatively short time, leaving the No. 2 Burrell the only one which has produced for any length of time. The Thomas producer is approximately 600 feet to the west of No. 6-A Bordages, which was completed last September on the pump for 150 bbls. daily at 4,948 feet. The latter pumped less than two months and later was deepened to 5,634 feet unsuccessfully and was abandoned with a bad hole.

Fannette really gained its first recognition with No. 2 Burrell, which was 600 feet southeast of the Bordages well. It blew out from a sand at 5,607-17 feet early in January, caught fire and burned out of control for a week. Initial production was estimated between 4,000 and 5,000 bbls. but after it was put under control and screen was set it flowed initially an estimated 1,500 bbls. daily. The well has flowed continuously since then until a few weeks ago, and now is being worked over.

Point Barre Wildcat

The importance of the Point Barre wildcat, The Texas Company's No. 2 Botney Bay, is uncertain at this time. This well blew in Friday while washing and blew at the rate of an estimated 40,000,000 feet of gas daily. Later it started spraying oil and Saturday, according to reports received in Houston, it was flowed an estimated 150 bbls. daily. This well is in a sand at a total depth of 3,616 feet. It tried to blow out several weeks ago while attempting to set screen. The gas was killed but a fishing job was necessitated in pulling the screen to reset.

This well has acted similarly to The Texas Company's No. 1 Botney Bay which blew in last February after it had tried to blow out previously. That well flowed for a short time at the rate of 500 bbls. daily but was shut in for storage and later when opened it would not flow. After several attempts to make a well of that one in sand which was at a total depth of 3,763 feet, the hole was deepened to approximately 4,125 feet and abandoned in salt. The second well is 400 feet north and 94 feet east of No. 1 in Section 4-6s-5e. A third test, Gulf Refining Co.'s No. 1 Gaudet, 1½ miles west of The Texas Company's wells, is being drilled at Point Barre. Late in the week it was drilling shale at 3,800 feet.

Several Good Wells

Several good wells figured in coastal completions of the week, these being featured by Gulf Production Co.'s No. 53 Davis, at Big Creek which came in earlier in the week flowing 3,800 bbls. of pipe line oil daily from sand at 4,218 feet with five joints of screen set. The oil tested 25.8 gravity at 90 degrees. Saturday this well was holding up around 3,600 bbls., which is unusual for that field.

At Blue Ridge, Sinclair Oil & Gas Co.'s No. 4 Davison on the east flank was deepened to a sandy shale at 3,483 feet and flowed initially at the estimated rate of 2,000 bbls. daily. This was one of two good wells at Blue Ridge, the other being South Texas Petroleum Co.'s No. 1 Davison in the same area, which came in flowing an estimated 1,900 bbls. daily from sand at 4,374 feet. It also is a former producer deepened.

At Pierce Junction, T. G. Shaw and Texas Exploration Co.'s No. 2-E Fitzsimmons and Navarro Oil Co. and Humble Oil & Refining Co.'s No. 3 Dooley added 2,400 bbls. flush production to that field. The former, deepened to 4,550 feet flowed 1,200 bbls. daily and the latter at 4,686 feet produced initially at the rate of 1,200 bbls. Both of these wells are on the east side of the Dome where a constant run of similar wells has been brought in in the last several months. On the west side of the Dome, Rio Bravo Oil Co.'s No. 4 fee, a work-over, is flowing 700 bbls. daily at 3,592-3,621 feet.

Of considerable interest at Pierce Junction, however, is Saxet Gas Co.'s No. 2 Herman estate, a semiwildcat on the southwest side of the dome, which Friday afternoon blew out while in a sand at a total depth of 4,229 feet. The well, which was out of control several hours before a christmas tree could be connected up, was estimated to have blown at the rate of 40,000,000 feet of gas daily. The gas was dry.

Other Coastal Completions

Completions of the week included: Republic Production Co.'s No. 113 Dolbear, Hull, a former well deepened to 2,837 feet, pumping 250 bbls.; this company's No. 65 Dolbear, Hull, another work-over, pumping 450 bbls., 2,812 feet; Gulf Production Co.'s No. 64 Phoenix, Hull, a work-over, pumping 30 bbls., 3,462 feet; Mecom Oil Co.'s No. 1 Barrett, Liberty, pumping 20 bbls., 2,887 feet; Vacuum Oil Co. and Gulf Refining Co.'s No. 24 Miller, Lockport, flowing 400 bbls. of fluid, 50 per cent water, 4,384 feet; Butler & Calhoun's No. 2 Shuerenberg, Brenham, pumping 50 bbls, net oil, 220 feet; Yount Lee Oil Co.'s No. 86 Gladys City, Spindletop, flowing 150 bbls. oil, 2,776 feet; Weldon Oil Co.'s No. 7 Bradley-Hooks, Saratoga, pumping 25 bbls. net oil, 1,598 feet; F. B. Hart's No. 1 Work-Davis, pumping 12 bbls. net oil, 879 feet; Ada Belle Oil Co.'s No. 125 McGoldrick State land, Batson, pumping 10 bbls, net oil, 1,085 feet.

Failure at Pierce Junction

Efforts of the South Texas Petroleum Co. (H. R. Cullen and associates) to extend production at Pierce Junction to the far south side of the dome met with failure with the abandonment of its wildcat, No. 1 Meyers after drilling to 5,254 feet in shale. This is the first test to drill anywhere on that part of the dome. At Mykawa Humble Oil & Refining Co. junked its No. 1 Irvin with drill stem stuck at 3,810 feet and is skidding the derrick and rig for No. 2.

The third test on the Young Ranch prospect in Waller County also met failure when The Texas Company abandoned its No. 1 Young in shale at 4,011 feet. Two other tests in this district were drilled by the late R. L. Young, following which the holdings were taken over by The Texas Company.

Preceded by a string of disappointing operations in the pool on the south side of the old Hackberry Dome, Cameron Parish, Rycade Oil Corp. late in the week abandoned its No. 2 Vincent at 3,455 feet. This field, which several months ago was the most active competitively drilled field on the coast, now is virtually deserted by the driller.

Big Gas Well in Refugio

Refugio added another big gas well Thursday when Houston Gulf Gas Co.'s No. 4 Holmes Heard blew in for an estimated 80,000,000 feet of gas from sand at 3,646 feet. Pressure at the well gauged 1,450 pounds. This well is in the extreme northern part of the field.

Possibilities of a good extension of the deep sand production on the south side of the Humble field were seen Saturday when screen was set in Humble Oil & Refining Co.'s No. 1 Williams to test a sand showing heavily of gas and some oil at a total depth of 4,888 feet. This test has experienced lots of gas pressure for several hundred feet. The test is approximately 2,000 feet to the southwest of the nearest production of the South Texas Petroleum Co.

Gulf Production Co.'s wildcat producer No. 1 Boyt, at Hankamer in the southern part of Liberty County which was completed earlier in the month as good for 700 bbls. daily of pipe line oil has shown up a large percentage of water with a consequent heavy drop in the oil output, averaging only around 200 bbls. the past week. Saturday it was entirely shut in. A location has been made for No. 2 Boyt 300 feet away. Yount Lee Oil Co.'s deepest Gulf Coast producer, No. 6 Housierre-Latrielle, southwest of Jennings, still is holding up at around 2,400 bbls. daily pinched in but is showing up a small amount of water, less than 2 per cent.

Production of the coastal fields which has been on the decline for several weeks again took an upward turn the past week, registering a gain in the daily average of 4,312 bbls. Daily average production by fields was:

GULF COAST

Texas

Allen	11
Barbers Hill	8,268
Batson	1,419
Big Creek	2,755
Blue Ridge	3,621
Brenham	220
Boling	1,611
Clay Creek	2,697
Damon Mound	595
DeWalt	11,290
Fannette	255
Goose Creek	5,763
Hankamer	227
High Island	1,197
Hull	9,583
Humble	5,907
Jasper	10
Markham	415
Nash	495
North Dayton	405
Orange	3,032
Orchard	131
Pierce Junction	19,291
Port Neches	101
Refugio	2,759
Raccoon Bend	5,318
Saratoga	931
Sour Lake	2,716
South Liberty-South Dayton	5,863
Spindletop	27,474
West Columbia	5,874
Total	130,234
Total previous week	126,606
Increase	3,528

South Louisiana

Anse La Bute	50
Bayou Boullion	500
Black Bayou	161
Edgerly	691
Dog Lake	5
Jennings	3,614
Hackberry	4,810
Lockport	3,736
Sorrento	349
Starks	418
Sulphur	2,200
Sweet Lake	475
Vinton	5,090
Welsh	35
Total	22,184
Total previous week	21,500
Increase	684
Total Gulf Coast	152,418
Total previous week	148,106
Increase	4,312

GULF COAST FIELDS AND WILDCATS

Week Ended June 15

BARBERS HILL—CHAMBERS COUNTY

Unice Oil Co.'s No. 1 Feldman, east flank	Flowing 420 bbls. 5,221 ft.
Mills Bennett Production Co.'s No. 1 Smith, east flank	Coring shale 5,245 ft.
Mills Bennett Production Co.'s No. 3 Smith	Drlg. lime 1,396 ft.
Mills Bennett Production Co.'s No. 2 Hamman	Spudded.
Mills Bennett Production Co.'s No. 1 Barber, north flank	Drlg. hard rock (cap) 6,202 ft.
Humphreys Corp.'s No. 8-A Kirby, east flank	Drlg. sand and boulders 2,864 ft.
Humphreys Corp.'s No. 1-H Kirby, east flank	Drlg. sandy shale 3,869 ft.
Humphreys Corp.'s No. 1 Tarbutton, east flank	Sidetracking stuck drill pipe; total depth 4,350 ft.
Humphreys Corp.'s No. 1 Illfrey, east flank	Drlg. sand rock 1,791 ft.
Republic Production Co.'s No. 1 Kirby, south flank	Drlg. gumbo 3,570 ft.
Rexal Oil Co.'s No. 2 McLean, east flank	Drlg. gumbo and lime 4,000 ft.
Rexal Oil Co.'s No. 1 Smith, east flank	Drlg. 3,212 ft.
Sun Oil Co.'s No. 2 Chambers, southwest	Drlg. plug 5,371 ft.
Sun Oil Co.'s No. 1 Chambers, southwest	Preparing to pump oil sand 5,708 ft.
Talbert & Markle's No. 1 Schilling	Drlg. shale and lime 4,867 ft.
Yount Lee Oil Co.'s No. 4 Chambers, southwest	Cmtd. 6⅝-in. casing 5,734 ft.; oil sand 5,884-5,935 ft.; drlg. plug and coring shale 6,138 ft.
Yount Lee Oil Co.'s No. 6 Chambers, southwest	Drlg. oil sand 4,965-85 ft.

BOLING—FORT BEND AND WHARTON

South Texas Pet. Co.'s No. 6 Bay, northeast	Drlg. heaving shale 3,894 ft.
Sun Oil Co.'s No. 6 E. C. Farmer, east	Drlg. shale and pyrite 3,552 ft.
Sun Oil Co.'s No. 7 E. C. Farmer, east	Drlg. rock 982 ft.
The Texas Company's No. 1 Bushnell, northeast	Sticky shale 4,172 ft.; shut down high water.
The Texas Company's No. 2 Pleasants, northwest	Rig up.
Union Sulphur Co.'s No. 2 Hill	Drlg. salt 1,838 ft.

RACCOON BEND—AUSTIN COUNTY

Humble Oil & Refg. Co.-Valley Oil Corp.'s No. 4 Hardy	Drlg. shale and shell 3,154 ft.
Humble & Valley's No. 2 O. Wilson	Comp. flow 292 bbls. 3,292 ft.
Humble & Valley's No. 3 Saunders	Drlg. shale 2,500 ft.
Humble & Valley's No. 1 Buchanan	Fishing 3,570 ft.
Humble & Valley's No. 2-A Bracey	Reaming to set casing 3,320 ft.
Humble & Valley's No. 1-B Washington	Swabbed small amount of oil 3,433 ft.; to deepen.
Humble & Valley's No. 1 Helmuth	Drlg. sandy shale and shell 3,484 ft.
Humble & Valley's No. 1-A Mitchell	Drlg. sand 3,021 ft.
Humble & Valley's No. 1-B Mitchell	Drlg. shale and lime 1,175 ft.
Humble & Valley's No. 2 Stravoski	Drlg. shale and lime 1,916 ft.
Humble & Valley's No. 1 Koehn	Drlg. shale 1,091 ft.
Humble & Valley's No. 3 Walton	Rig.

(Continued on Page 115)

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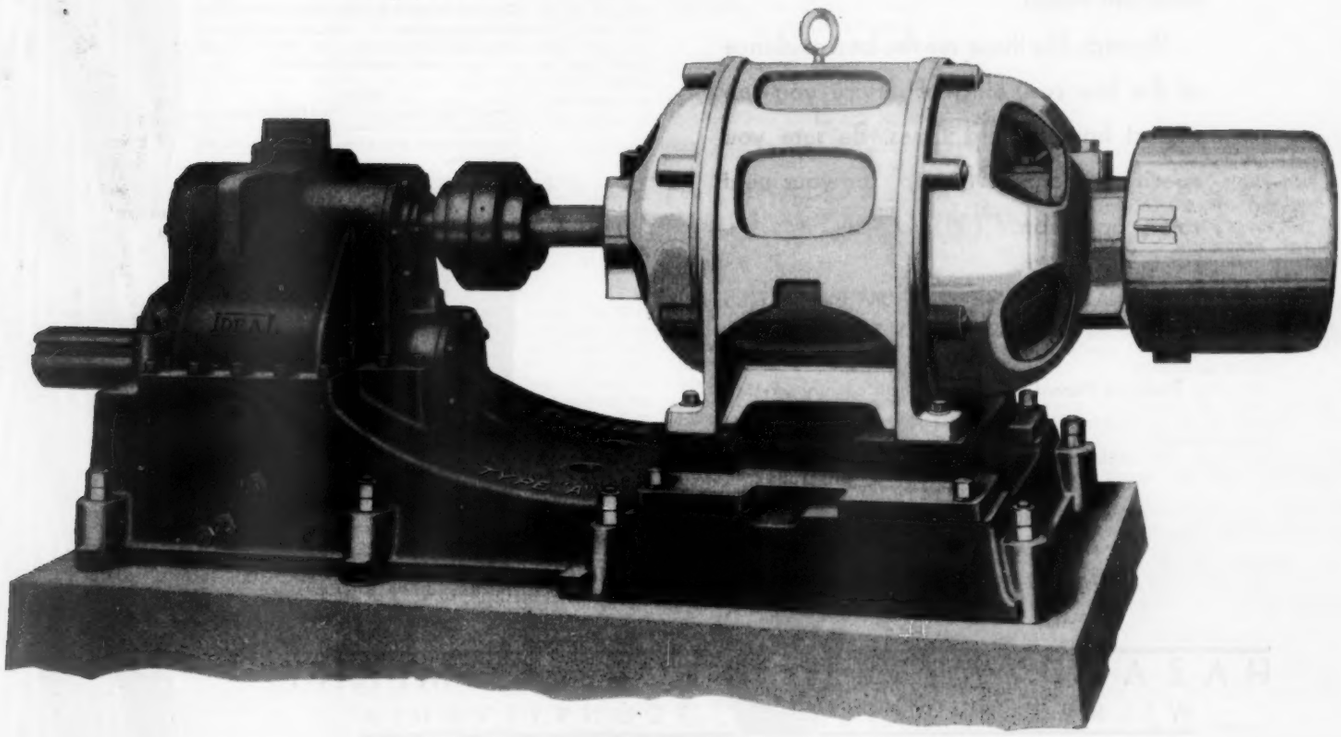

Descriptive Bulletin
No. 16UA
Free On Request

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HERE are two more examples of rotary drilling line efficiency and economy.

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The line used on Mead Bros., Inc., rig has drilled over 10,000 feet. The other line is close to that mark. Both lines are in excellent shape.

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Dailey Markham Drilling Co., rig on Harjoshie No. 4, Gypsy Oil Co., Mission Pool, using 1" x 1250' Hazard Olympic Rotary line. Also the second well for this line.
Earl Bridges, Driller — M. L. Beaver, Roughneck
J. G. Copeland, Roughneck — Tom Riley, Roughneck
Jack Campbell, Roughneck

(Below)
One of Mead Bros., rigs on J Neal No. 4, Minnahoma Oil & Gas Co., in the Mission pool, using a 1" x 1250' Hazard Olympic Rotary line. This is the second well for this line.
Jean Lambert, Driller — J. E. Jones, Roughneck
Fred Velvin, Roughneck — C. A. Sneed, Roughneck

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Carolina Texas Field Holds Interest

Hope for Deeper Oil Production Is Encouraged. Two Wells Make Important Extension to Oil Producing Area

By B. D. Stevenson
Staff Correspondent, Southwest Texas

SAN ANTONIO, Tex., June 17.—Proven fields the past week in Southwest Texas offered very little of interest outside of the developments in the Carolina-Texas Field in the Laredo district and the evident interest on the part of purchasers of crude oil in the Refugio Field in Refugio County. In the Carolina-Texas Field, Trapshooter Reilly Oil & Royalties Co.'s No. 1 Benavides, a half mile south of production, was reported in late news from the field last week to have developed where it was practically sure to make a well, total depth 3,075 feet. The oil is 47 gravity, and the well will probably pump about 50 to 100 bbls. It inspires hope that there will be a deeper production. The well is on Gulf Production Co. acreage, the Gulf having the lease on all of Survey 685 for which it is understood a few years ago to have paid $125,000 cash and $250,000 to be paid out of oil. The Gulf reserved the production under 4,500 feet, when it leased to Trapshooter Reilly Oil & Royalties Co.

In this same field last week W. R. Shankle, who has a test a little northwest of Reilly and southeast of the Usher Carson wells, finished a fishing job and his test with a total of 3,070 feet looks like a producing oil well. Both Shankle and Reilly are putting their tests on the pump and a gauge of the production will be had in a few days. Taking the two together they will make a very important extension. In approximately the center of Survey 684, Usher Carson has two wells producing at 2,600 feet and a quarter of a mile north of that Magnolia has one small oil well at 3,090 feet. The Shankle well is a half mile southeast of Usher Carson and the Reilly test a half mile south and no test has ever been drilled between them. Half to three-quarters of a mile north and northwest are three gas wells spraying oil and casinghead gasoline from 3,000 feet.

Important Test

George S. Marshall's No. 1 Webster, a quarter of a mile southwest of Usher Carson's wells, is drilling at 1,600 feet. It is the next important test in the field. It will core for the 2,600-foot sand. It is in territory that looks certain to be proven for something, possibly for all the sands. The only other test drilling in that field is the Carolina-Texas Oil & Gas Trust's No. 7 Benavides in Survey 683 the next survey west of 684. It is an offset to The Texas Company's gas well at 2,600 feet, which is approximately a little over a half mile west of the Usher Carson wells. The Texas Company well is spraying oil. All this oil is developing on the southeast flank of a structure that has been making gas and with wells approximately on the apex of the structure spraying oil.

Shepard and others have made a location for the No. 1 King-Harper in the north end of the Cole gas field in Duval County where T. P. Morgan and William F. Morgan each drilled more than one test with good showings of oil and hoped to bring in an oil pool. Shepard's location is in Survey 323 and is 337 feet from the north line and 1,560 feet from the east line of the survey which is a quarter of a mile north of William F. Morgan's last attempt. Nearest production in the Simms gas pool is 3 miles due north.

Just a few wells were completed in the Joe Bruner Field and none of any particular importance. Two belonged to the Humble Oil & Refining Co. and one to the Shell Petroleum Corp., and all three were ordinary wells.

In the Yoast Field in Bastrop County, Trinity Drillers brought in a well, the No. 4 A. Yoast at 1,470 feet with initial production of 120 bbls. daily. It is a good well and is extending the field slightly. The Atlantic and Texas are each rigging up on their No. 7 Yoast which are offsets along their lease line. They are moving to the southeast with each new location and the field seems destined to reach its limits on that side soon.

Caldwell County

In the Branyon area in Caldwell County north of the Joe Bruner Field, Al Buchanan has abandoned No. 1 Teas at 2,418 feet at which depth it was 58 feet into the Edwards and dry. It is probable this will be the last attempt to make a field out of the Branyon area which up to this time consists of two wells making about 26 bbls. a day total, most of it from The Texas Company's No. 2 Branyon, and a string of about 20 dry holes. Old Luling Field is 5 miles southwest and Dale is 8 miles northeast. Between the Dale and old Luling Fields there have been about 50 dry holes drilled and about 15 were drilled after The Texas Company brought in its No. 2 Branyon in the southeast corner of the R. B. Jarman Survey making initially about 150 bbls. a day. It is producing from the chalk and it looked like a sure field. Fifteen or more tests were drilled northeast and southwest from it but every one was a dry hole, with the exception of one small well drilled close to the discovery well by The Texas Company. Geologists generally agreed there was one location left that was possible of producing. Buchanan drilled on it and got the chalk high by 123 feet but the structure was dry.

Zavala County

Tritex Oil Co.'s No. 5 West, in the northern part of Zavala County, has been gauged and shows 580 pounds rock pressure and a volume of over 30,000,000 feet at total depth of 850 feet. It is a fine well, conceded so by everyone. It gauges a little bigger than reported to The Oil and Gas Journal last week. Two other wells drilled by the company were completed for only about 2,000,000 or 3,000,000 feet. No. 5 is of commanding importance. Tritex Gas Utilities has a project to build a gas line of about 200 miles in length and supply gas to about 8 or 10 good sized towns and cities in a half dozen counties between San Antonio and Eagle Pass and the completion of a good big gas well will materially aid in the supply of natural gas. The first two wells completed are to the east and it is believed now the best of the field lies to the west of these and that a good field can be developed. The location is about 100 miles west of San Antonio and about 50 miles east of Eagle Pass.

COMPLETIONS

Bastrop County

Atlantic Oil Producing Co.'s No. 6 Andy Yost, A. Garcia Survey, completed 1,509 feet, initial production 300 bbls.

The Texas Company's No. 6 Andy Yost, A. Garcia Survey, completed 1,487 feet, initial production 300 bbls.

Trinity Drillers Inc. No. 4 Andy Yost, A. Garcia Survey, completed 1,470 feet for 120 bbls.

Caldwell County

Shell Petroleum Corp.'s No. 5 New completed 2,752 feet, pumping 50 bbls.

Humble Oil & Refining Co.'s No. 3 Wright, completed at 2,707 feet, pumping 50 bbls.

Humble Oil & Refining Co.'s No. B-4 Moses & Baggett, Samuel Shupe Survey, completed 2,706 feet, pumping 350 bbls.

Webb County

W. R. Shankle's No. 1 Webster, NW SE, Survey 684, at 3,045 feet looks like small oil well, is installing standard equipment and will report initial output later.

Trapshooter Reilly Oil & Royalties Co.'s No. 1 Benavides NE NW, Survey 685, at 3,050 feet looks like small oil well, and is installing standard equipment with production reported later.

SOUTHWEST TEXAS
Daily Average Production
Week Ended June 15

	Bbls.
Dale	495
Branyon	25
Bruner	48,717
Gonzales	83
Kingsville	275
Larremore	160
Luling	11,526
Lytton Springs	1,001
McMullen County	64
Medina County	30
Mirando district	11,316
Somerset	1,896
Yoast	1,286
Total	76,874
Total previous week	77,942
Decrease	1,068

ABANDONED TESTS

Caldwell County

Al Buchanan and others' No. 1 R. C. Teas, John R. Miller Survey, abandoned at 2,416 feet.

Calhoun County

B. F. Thompson's No. 1 Thomas, John P. Tully Survey; Thompson reported to have sold interests.

Guadalupe County

Humble Oil & Refining Co.'s No. 2 Town of Staples, G. Allen Survey, has been abandoned dry at 740 feet.

Zapata County

May & Holder's No. 1 Cuellar, Cerrito Blanco Grant, has been abandoned at 1,835 feet.

Magnolia Petroleum Co.'s No. 1 Cuellar, Survey 246, has been abandoned at 2,695 feet.

NEW LOCATIONS

Blanco County

Robert Rodson's No. 2 Glasscock is location.

Bexar County

Richardson & Crouch's No. 1 G. Schmetz estate, P. L. Buquor Survey, 131 feet north line, 150 feet west line, is drilling.

Brooks County

A. W. Dinn's No. B-1 Garcia is drilling at 450 feet.

Milam Drilling Co.'s No. 3 Riley Allen, 40 feet north of No. 1, a core test has been spudded in.

Bee County

Nichols and others' No. 2 Hicks, in central part of county, has resumed drilling at 1,187 feet.

Mission Drilling Co.'s No. 3 Ray Ranch, 3 miles east of No. 2 has derrick up in Pettus field.

Caldwell County

Forest Oil Co.'s No. 1 M. H. Woods, Isaac Weldon Survey, Block 35, is location south central part of lease.

Forest Oil Co.'s No. 1 T. Enriquez,

(Continued on Page 138)

WILDCAT INTEREST IN LAREDO AREA CENTERING IN ZAPATA COUNTY

By B. D. Stevenson

SAN ANTONIO, Tex., June 17.—Wildcat interests in the Laredo territory are centering somewhat in Zapata County. Muckelroy, Jr., and associates have moved 300 feet south of No. 1 Benavides which was reported standing 300 feet in oil. This well is 3 miles southeast of the old Jennings gas field and came in first for 3,000,000 feet of gas. It stood about 10 days and when opened for inspection failed to make gas. The bailer was run and it was found standing in oil. It is believed the oil came into the hole in about four days. The well is in the south part of Survey 412. Three miles south of that, Buck & Coursey are starting a test in Section 47 of the Comitas grant which will be watched with interest. It is down 600 feet.

No additional report has been received from the John Poppas No. 1 Cuellar over on the Rio Grande that tested some gas and has set casing. It has not yet drilled in. Marts and Beavens have gone up the river several miles north and started No. 1 Trevino in Block 2, Survey 1, of Porciones 2 and 3, and are rigging up. Also the National Oil Co.'s No. 1 Don Adams which has been standing for a couple of weeks at shallow depth is reported showing some gas.

Several miles south of the Randado Pool, T. J. Conway, who was one of the owners of the discovery well of the Randado Field, has made location and has the derrick up for No. 2 Leyendecker in Block 4, Survey 234, of Jim Hogg County. Conway drilled one test in that part of the county recently and it encouraged him to start another. The location is between the Randado and Alworth Pools.

San Antonio Area

Three wildcat tests west of San Antonio are looking fairly good. Pearson Oil Co.'s No. 1 Suburban Irrigated Farms, in Medina County, a mile southeast of Noonan and a mile north of Chicon Lake, late last week was 115 feet into Serpentine at 1,050 feet and had considerable oil in the ditch and was making some gas. It is the first time in Medina County that oil has been found in Serpentine. Casing will be set and the well tested. The oil is lower gravity and somewhat different from that in the Lytton Springs, Dale and Yoast Fields in Caldwell and Bastrop Counties that are producing out of the same formation. The well is nearly 4½ miles due west of Lytle on the edge of Bexar County. Two miles east of Lytle, Balcones Oil Corp. has had repeated showings in No. 1 Jackel and is now down below 1,000 feet. Two miles northwest of Devine and approximately 6 miles south of the Pearson Oil Co.'s No. 1 Suburban Irrigated Farms, the Zigzag Oil Co. topped the Anacacho and a showing of oil simultaneously at 1,858 feet. They are now reaming down and preparing to take a core.

Fayette County

Lively interest is centering in Fayette County near where National Oil Co. recently abandoned No. 1 Melcher as dry. Shell Petroleum Corp. has been one of the most active buyers after geophysical exploration over the region and has paid as high as $15 an acre and an annual rental of $5 for acreage. The National's test got some thick sands that carried water. Assumption is now that it was on the wrong side of the fault and probability is another test will be drilled by the National on a new location. The fault line is assumed to be in a northeast-

(Continued on Page 136)

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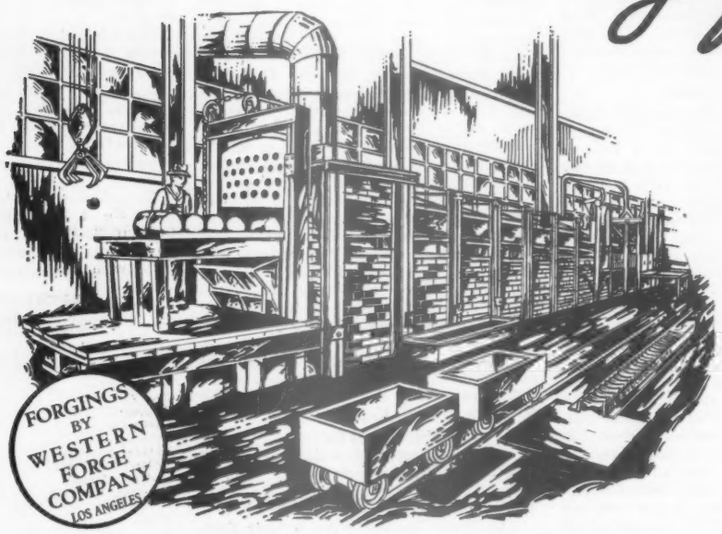

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By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., June 15.—Although California operators have arbitrarily pinched in approximately 75,000 bbls. per day in compliance with Umpire F. C. van Deinse's various general orders, deep zone development at Santa Fe Springs has more than offset the amount of production shut in with the result that the curtailment has not been reflected in state production. To bring production into line and prevent future completions from offsetting curtailment work, all new wells finished subsequent to June 15 will be permitted to flow unhampered for a period of only four days before being pinched back. It has been customary heretofore to flow all new wells for a period of 10 days following completion and to accept the output for the tenth day succeeding completion as the potential production upon which to predicate curtailment. It is obvious a 10-day flow is too long if operators really wish to reduce production, especially where any considerable number of new wells are being completed from week to week. General Order No. 5, issued under date of June 11, effective at 7 a.m. June 16, supersedes General Order No. 4 and contemplates a curtailment of 207,271 bbls. per day. This new order, like No. 4, penalizes fields yielding flush production by applying a sliding curtailment scale. Wells producing 20 bbls. or less per day will be curtailed 10 per cent, while producers exceeding 20 bbls. but less than 500 bbls. will be cut 25 per cent. Leases or wells producing in excess of 500 bbls. per day are expected to be pinched back 35.67 per cent.

General Order No. 5, unlike previous regulations, indicates the amount of oil produced by all companies in excess of the allotted production. Umpire van Deinse, in issuing this new order, desires the industry as a whole and the general public should know the producers who are and those who are not in sympathy with co-operative self imposed control of crude oil production in California. The evidence of this sympathy can be expressed only by actual curtailment and any excess production shown on General Order No. 5 indicates a lack of sympathy. General Order No. 5 discloses all operators who, according to information filed with the Umpire, curtailed their production during the period of May 16 and May 31, inclusive, and also indicates the names of those who failed to comply with instructions. Practically all of the northern fields have complied with preceding general orders. Southern California fields as a rule have also fallen into line although several greatly exceeded the allotted production. This conditions was especially marked at Long Beach where operators produced 33,188 bbls. per day in excess of their allotted production. Operators at Santa Fe Springs are charged with producing 10,909 bbls. per day in excess.

Several operators have failed to comply with any of the various general orders issued by Umpire van Deinse. F. G. Stevenot, director of the Department of Natural Resources of the State of California, recently mailed a brief summary of the new gas law to each producer in the State of California calling attention to the principal features of the recently enacted California conservation law. Mr. Stevenot said: "The new act is now being called to your attention and steps will be taken as promptly as possible to carry out the provisions of the law should it become necessary." Only one interpretation can be placed on this sentence. In the producing fields of California during March, 1929, the average daily amount of gas blown to the air was in excess of 620,000,000 feet, and in the immediate future a still greater excessive waste is threatened. The problem of eliminating all unnecessary waste now confronting the industry and the State is of paramount importance. The large number of new wells now being drilled will only add to the amount of gas being blown into the air and it is strongly urged that continued drilling for unneeded oil be reduced to the lowest possible minimum.

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	492,395	2,201,572
Fuel oil	.....	.....	.....	.....	49,950	111,621
Diesel and gas oil	.....	.....	78,785	11,255	913,200	1,009,077
Gasoline	390,590	55,799	513,984	73,426	9,091,346	5,581,129
Naphtha distillate	.....	.....	.....	.....	81,750	76,500
Coastwise—						
Crude oil	76,244	10,892	282,678	40,383	10,656,701	10,270,603
Fuel oil	537,283	76,755	399,699	57,100	10,183,052	8,184,265
Diesel and gas oil	7,374	1,053	10,269	1,467	667,537	670,205
Gasoline	323,945	46,278	338,553	48,365	4,975,205	2,897,745
Kerosene	.....	.....	.....	.....	30,456	26,435
Naphtha distillate	.....	.....	.....	.....	.....	171,566
Exports—						
Crude oil	32,809	4,687	198,364	28,338	2,270,439	1,116,782
Fuel oil	467,343	66,763	107,412	15,345	8,470,155	11,459,744
Diesel and gas oil	43,344	6,192	80,148	11,450	1,369,720	1,387,348
Gasoline	412,931	58,990	330,153	47,166	4,929,467	2,669,355
Kerosene	102,617	14,660	140,239	20,034	1,400,255	2,160,817

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC, GULF COAST PORTS

Diesel and gas oil	.....	.....	.....	.....	.....	342,425
Gasoline	.....	.....	.....	.....	1,050,732	1,204,377
Lubricants	.....	.....	.....	.....	.....	208,024
Coastwise—						
Fuel oil	62,112	8,873	134,500	19,214	1,233,221	2,029,167
Diesel and gas oil	3,970	567	1,488	212	289,770	157,030
Gasoline	125,129	17,876	190,760	27,251	2,153,394	2,005,183
Kerosene	2,970	424	6,666	952	53,460	92,527
Exports—						
Crude oil	.....	.....	.....	.....	121,603	79,199
Fuel oil	14,368	2,053	.....	.....	256,039	1,260,923
Diesel and gas oil	30,636	4,377	.....	.....	155,474	10,400
Gasoline	204,361	29,194	239,960	34,280	2,767,640	2,195,994
Kerosene	.....	.....	.....	.....	290,562	307,089
Lubricants	.....	.....	4,211	602	21,899	.....

Santa Fe Springs

Drilling and production activities at Santa Fe Springs were hampered to some extent by a fire which burned seven rigs and forced a temporary cessation of operations on all projects within a radius of several hundred feet. Santa Fe Springs has experienced a number of fires and disastrous blowouts since its dicovery by the Union Oil Co. several years ago and has the unique distinction of being one of the most troublesome fields developed up to the present. Several holes were lost because of gas blowouts shortly after the field was discovered in addition to the three major disasters which have occurred since deep zone exploitation got under way late last year. George F. Getty's No. 17 Nordstrum, which burned continuously for 48 days before being capped, started the latest series of mishaps and this blowout was followed a short time later when No. 2 Grohs of the Bell View Oil Co. broke loose and burned for some time before being brought under control. Both these wells were successfully capped and subsequently completed as large producers.

The latest fire at Santa Fe Springs started Monday afternoon, June 10, when oil from O. J. Rhode's No. 1 York McAdams was blown into a nearby boiler and became ignited. This well, completed last month flowing 5,460 bbls. per day from the O'Connell zone at 6,819 feet, sanded up late Sunday, June 9, and preparations were undertaken to clean out the hole and return it to production. Without warning the well suddenly started flowing again Monday accompanied by a terrific volume of gas which apparently had accumulated during its short dormant period. Its sudden return to life was totally unexpected and did not permit normal completion. The gas trap was by-passed with the result that the terrific volume of gas blew the top off the storage tank, which almost immediately collapsed, and sent this high gravity crude in all directions. This became ignited due to the proxmity of boilers incident to town lot development. Within a few minutes York & Lockhart's No. 2 McKeon, a flowing well, took fire and derricks and equipment were destroyed on the General Petroleum's No. 187-B, Woodward & Bull's No. 1 Santa Fe, No. 2 Bardeen of the Graham & Loftus Oil Co., No. 4 of the U. S. Royalties and the Wilshire's No. 1-A Peterson.

York & Lockhart's No. 2 McKeon, the second well to take fire, was on production, having been completed last month flowing 3,780 bbls. from the O'Connell zone at 6,801 feet. This well hampered control work as the fire in Rhode's well was at the end of a lead line and was extinguished by closing the control gate. The tangible loss, excluding time lost on drilling and producing projects, approximates about $250,000 and is represented by the loss of seven rigs and rotary equipment, storage facilities and production equipment and approximately 20,000 bbls. of crude stored adjacent to the fire. About 9,000 bbls. of oil was burned each day of the fire as Rhode's No. 1 York McAdams was flowing about 6,000 bbls. daily and York & Lockhart's No. 2 McKeon about 3,000 bbls. In addition to the two wells vitally affected, drilling and production activities were suspended on Nos. 1 and 2 on the Wardman lease of the Cypress Oil Co., Nos. 101 and 187-C on the E. G. B. lease of the General Petroleum, No. 2 Clark of the Richfield Oil Co. due to the proximity of their projects to the fire zone.

Program of The Texas Company

The Texas Company continued its aggressive development campaign at Santa Fe Springs and put two excellent producers on production. These two producers pushed the daily production of this company at Santa Fe Springs up to approximately 55,000 bbls., 50,000 bbls. coming from the Nordstrum and O'Connell horizons. The two new wells of The Texas Company were No. 4 Baldwin, recompleted doing 11,785 bbls. daily after being redrilled and deepened from the upper to the lower horizon. This rejuvenated producer, recompleted in the O'Connell zone at 6,840 feet, is making approximately 12,000,000 feet of natural gas in

EIGHT DUNDEE COMPLETIONS TOTAL 6,200 BBLS. IN MICHIGAN

By Special Correspondent

MUSKEGON, Mich., June 15.—More new initial production was added to the Muskegon Field last week than any week since a new market for Dundee crude oil was established. Eight new Dundee wells, six in Laketon Township and two in Muskegon Township, had an aggregate initial production of 6,200 bbls. One gas well in the lower Traverse gauged at 1,000,000 feet. Only three new locations were made, two in Muskegon Township and one in Laketon Township. One dry hole was reported in the Dundee in Newaygo County and two new locations announced, one in Muskegon County and one in Oceana County.

The Mount Pleasant-Midland Field of Central Michigan produced a surprise in a 200-bbl. upper Traverse producer, the first commercial producer in this stratum. Another had a show of oil and gas in the upper Traverse which for a time looked as if it would make 100 bbls. a day. It is now drilling on to the Dundee.

Largest Well

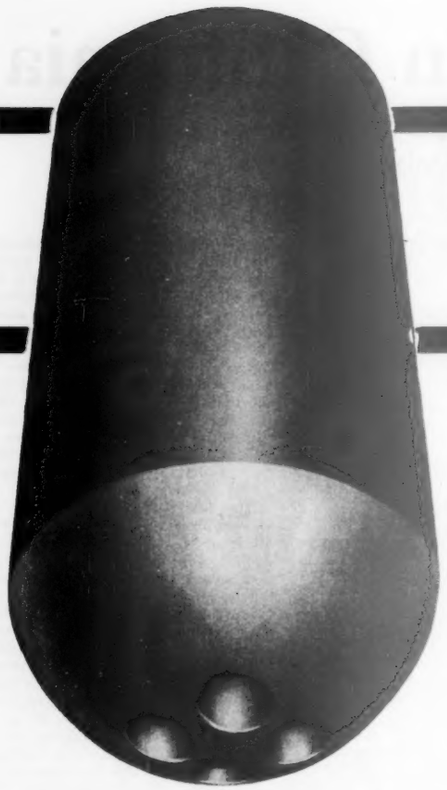
The largest well in the Laketon Township was Charlotte G. Marsh and others' No. 2 Albert Young, SE NE, Section 12-10-17, with the pay at 2,028-31 feet, making 1,500 bbls. initial. Carl P. Damm's No. 3 fee, NE SW, Section 12-10-17, will make 1,200 bbls. initial although tested only a few hours at 2,056-61 feet. Charlotte G. Marsh's No. 2 Albert Young, SE NE, Section 12-10-17, made 800 bbls. initial at 2,015-18 feet. Nelson & Witt, Inc.'s No. 2 Ralph Andree was a 700-bbl. initial producer at 2,028-34 feet. Eureka Gas & Oil Co.'s No. 1 Harry Buteau, SE NE, Section 12-10-17, which had paid for itself as a 500-bbl. initial producer in the upper Traverse, was deepened into the Dundee and came in for 300 bbls. a day at 2,024-31 feet.

United Petroleum Corp.'s No. 1 Albert Peters, NW SE, Section 12-10-17, at 2,625-28 feet, is good for about 200 bbls. on the pump.

Of the two new Dundee wells completed in Muskegon Township, the Muskegon Oil Corp.'s No. 3 John Yonker, NE NE, Section 5-10-16, made 60 bbls. an hour initial at 2,012-20 feet. L. E. Kennedy's No. 3 Charles I. Giles, NE SE, Section 6-10-16, made 500 bbls. initial at 2,045-49 feet.

One of the surprises of the week was the Continental Gas & Oil Co.'s No. 12 Continental Motors Corp. well deepened from the upper to the lower Traverse. It was good for 5 or 10 bbls. a day in the upper pay sands but came in with a flow of dry gas at about 1,920 feet gauged at more than 1,000,000 feet. It will be shut in until other acreage nearby has been drilled. If there proves to be sufficient gas in the neighborhood, which is about 2 miles southeast of the main portion of the Muskegon Township proven area, the Continental Motors Corp.

(Continued on Page 139)



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"They must be made of materials which are of the highest standard for the purpose for which they are to be used;

"No tool or item of equipment shall be placed on the market until it has been thoroughly field-tested and has demonstrated its ability to stand up, with a reasonable factor of safety, in the work for which it is intended to be used.

"Quality shall be of a uniformly high standard, and such that customers will place the utmost reliance in Baker products."

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Operators everywhere have had their judgment in buying Baker Cement Equipment upheld by its performance and once more — "Baker Scores A Touchdown."

Baker Cement Equipment is the original and only equipment of its kind and is fully covered by Patents Nos. 1035674, 1491915, 1561768, and 1603447.

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It's Too Late to Be SORRY After You Have Lost the Hole!

addition to the crude which is exceptionally clean and tests 34.6 degrees. No. 7 Weaver, which followed No. 4 Baldwin into production, is a new well bottomed at 6,756 feet, the hole having been plugged back from 6,789 feet. It tanked 9,355 bbls. of clean 34.5 gravity oil during the initial 24-hour test and is yielding 10,000,000 feet of saturated gas daily in addition to the crude. The Texas Company's premier producer at Santa Fe Springs is No. 4 Standlee, brought in last month flowing 11,000 bbls. daily from the O'Connell zone at 6,450 feet. This well has subsequently built up and was producing 12,120 bbls. previous to being pinched back. It has already produced over 200,000 bbls. of crude and more than repaid the total drilling cost within 15 days after completion. The Texas Company has several other wells nearing completion in the deep zone and two or three should be tanking oil within 15 days.

The Associated Oil Co. succeeded in completing its No. 2 Clarke in the Clarke zone which underlies the O'Connell horizon but the output from 8,165 feet is not particularly gratifying due probably to edgewater conditions. This well, which was first to encounter the Clarke zone several weeks ago, is flowing under a pressure of 1,060 pounds on the casing but the daily output, 1,150 bbls., is cutting approximately 45 per cent water. No. 7 Dallugge, another Clarke zone project, has just been recemented for the third time and, while the failure to effect a satisfactory shut off is somewhat discouraging, the Associated's field department feels confident this condition will be corrected. The company had better luck in the O'Connell zone, as No. 2 Jordan was recompleted a few days ago flowing 9,260 bbls. of oil and 11,000,000 feet of natural gas daily from 6,850 feet. This well was originally finished in the Buckbee zone last November flowing 8,250 bbls. per day from 5,747 feet and maintained a favorable flow for several months. The Italo Petroleum successfully finished No. 2 Archer and this well, completed in the O'Connell zone at 6,806 feet, came in producing 2,740 bbls. of 32.5 gravity oil and 3,000,000 feet of natural gas daily. It subsequently built up to 3,500 bbls. daily, at which rate it has remained relatively stable. The Universal Consolidated, which is developing the Santa Fe Springs' holdings of the Occidental Petroleum on a 50-50 basis, successfully completed its seventh producing well in this field when No. 5 O'Connell was brought in flowing 645 bbls. of clean 32.7 gravity oil daily from 7,650 feet. There are 212 new wells and former upper zone producers headed down to the deep pay and with a large number already below 5,500 feet we may anticipate a relatively large number of completions during the next 60 days.

Seal Beach

Four wells were put on production in the Seal Beach Field and a check of development work indicates two or more will probably also be finished within two weeks. The Marland Oil Co. completed two producers in the deep Wasem zone and increased its daily production 3,420 bbls. The company's two new producers were No. 1 Selover and No. 11 Bixby. The former, recompleted doing 1,240 bbls. of clean 26.2 gravity oil daily from 5,420 feet, was originally completed a few weeks ago but water subsequently broke in and nullified the preliminary test. The oil from this well is exceptionally clean as centrifuge tests indicate only a trace of sand. No. 11 Bixby, also a former upper zone producer, preceded No. 1 Selover into production by several hours and it, too, is yielding unusually clean crude. This well, bottomed at 5,497 feet and finished with a 5-inch liner carrying 674 feet of perforated, showed an initial daily production of 2,180 bbls. The Standard's contribution to the Seal Beach Field's list of producers was No. 2 San Gabriel, a new well which registered an initial of 548 bbls. daily from 5,313 feet. Nos. 20 and 21 were also completed and while neither was actually turned loose they should be tanking oil within a few days. The Associated listed No. 5 Bryant for completion, after redrilling and deepening it from the upper zone to the Wasem horizon at 5,475 feet, and it is flowing 940 bbls. of clean 27.1 gravity oil daily.

Long Beach

Although Santa Fe Springs has supplanted Long Beach as the dominating factor in state production, the latter field is still holding up in a remarkable manner and will continue to be an important element for some time due to the unusual thickness of oil-bearing formation and the large amount of consistent progressive development work under way. Four wells were put on production in this field during the week and a check of development work indicates the probable completion of several more soon. The Richifeld Oil Co. topped the weekly completion list by recompleting No. 2-A Bernstein flowing 3,360 bbls. of clean 29.6 gravity oil and 3,400,000 feet of wet gas daily from the Miocene at 7,555 feet, the hole having been finished with 4¾-inch oil string carrying 1,160 feet of perforated. This well, originally completed flowing 2,024 bbls. per day from 6,179 feet in April, 1928, yielded a total of 190,000 bbls. before being deepened to its present depth, 7,555 feet. It is near the Richfield's Meader lease, on which several large producers have recently been completed.

The Repetto Hills Oil Co. successfully completed its No. 4 Signal registering an initial of 960 bbls. of clean 30.3 gravity oil daily from 6,715 feet, the hole having been finished with a 4¾-inch oil string carrying 335 feet of perforated. The Macmillan Petroleum Corp., which had considerable success in deep zone development at Long Beach, put No. 2 Security on production but it showed an initial of only 295 bbls. daily from 6,071 feet. The last well finished was No. 4 Binkley of the Shell Oil Co. which showed an initial of only 106 bbls. daily from 6,380 feet, the hole having been plugged back from 7,257 feet. There are 145 new wells and former upper zone producers drilling ahead in the Long Beach Field and no immediate substantial reduction is anticipated in development work as a number of new rigs are in course of construction. The Dabney-Johnston Oil Corp., with 20 strings of tools in operation and eight wells scheduled for completion within a few weeks, is putting the finishing touches on five new rigs. The Shell Oil Co., discoverer of the Long Beach Field, heads the production list with a daily output of approximately 33,500 bbls., followed by the Richfield Oil Co. with 22,000. The Texas Company with 11,000, Dabney-Johnston with 8,500, the Union with 4,500 and the General Petroleum with 3,200 bbls. daily. The Shell Oil Co.'s No. 11 Nesa at Long Beach exceeded all drilling records during the week and is perhaps the deepest hole in the world at the present time as the bit was down 8,566 feet yesterday afternoon. No. 11 Nesa is deeper than The Texas well, which was bottomed at 8,525 feet, although the latter is a producer while the former is still in the drilling stage. It is the intention of the Shell to carry its deep Long Beach project down to 10,000 feet if possible in order to thoroughly test the possibility of developing deep production in this field where it has such extensive holdings.

Santa Barbara

With 19 wells already headed down to the pay and 20 additional rigs either in course of construction or being rigged up, the recently discovered Santa Barbara Field is rapidly taking on the appearance of a real oil field and unless some unexpected delay is encountered several more producers should be finished within 30 days. Five wells are already below the 1,000-foot level and with production anticipated around 2,000 feet it is possible another well or two may be finished before June draws to a close. The large number of diversified interests and the shallow depth at which production should be secured is almost definite assurance that this field will show a large number of new completions and the development of fairly substantial production at an early stage. It is too early to say just how high a peak this field will establish but it will not be equal to either Long Beach, Santa Fe Springs or other recent prolific areas. The limited amount of information available does not indicate the probable establishment of a maximum peak in excess of 50,000 bbls. per day, although subsequent developments may change the outlook.

Intensive drilling has already got under way in the subdivided town lot area but a very determined effort is being made to prevent indiscriminate uneconomic development. Operators at a recent meeting held under the auspices of the California Oil & Gas Association, pledged themselves to make an effort to prevent abnormal drilling as far as possible and to sponsor a general movement for the development of this field in accordance with conservative oil field practice. Waste water disposal and the elimination of all unnecessary fire hazards also came up for discussion and a committee was appointed to go into each feature. If the attempt to develop the Santa Barbara Field in an orderly manner is successful this will eliminate considerable unnecessary drilling and go a long way towards overcom-

(Continued on Page 131)

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well, location—	S-T-R	Depth	Status
Standard, No. 5-9 Saticoy, Ventura Co.	10- 2-22	6,762	br. sh. drilling
American Oil Co., No. 1 Camarillo, Ventura Co.	33- 2-20	1,194	hd. sd. drilling
Bolsa Chica, No. 1-A Temescal, Ventura Co.	4- 4-18	180	sd. drilling
Superior Oil Co., No. 1 Santa Paula, Ventura Co.	14- 4-21	610	hd. sd. drilling
Craise, F. A., No. 1 South Mountain, Ventura Co.	17- 3-21	Rig	suspended
Miley, E. J., No. 2 Red Mountain, Ventura Co.	7- 3-23	1,400	hd. sd. drilling
Miley, E. J., No. 3 Red Mountain, Ventura Co.	11- 3-24	Rig	suspended
Shell, No. 1 Simi, Ventura Co.	31- 3-17	2,914	redrilling
Continental, No. 1 Sulphur Mountain, Ventura Co.	21- 4-22	3,765	suspended
Continental, No. 2 Sulphur Mountain, Ventura Co.	22- 4-22	6,740	suspended
Continental, No. 3 Sulphur Mountain, Ventura Co.	21- 4-22	345	cemented
Lockwood Oil Co., Well No. 1, Ventura Co.	28- 8-21	Rig	suspended
Milham Explt'n., No. 1-A Buttonwillow, Kern Co.	8-28-23	4,662	gas well, idle
Milham Explt'n., No. 2 Buttonwillow, Kern Co.	8-28-23	2,730	gas well, idle
Milham Explt'n., No. 3 Buttonwillow, Kern Co.	8-28-23	2,694	gas well, idle
Milham Explt'n., No. 4 Buttonwillow, Kern Co.	6-28-23	2,670	gas well, idle
Milham Explt'n., No. 5 Buttonwillow, Kern Co.	5-28-23	2,500	gas well, idle
Milham Explt'n., No. 6 Buttonwillow, Kern Co.	8-28-23	2,676	gas well, idle
Milham Explt'n., No. 7 Buttonwillow, Kern Co.	6-28-23	2,720	suspended
Milham Explt'n., No. 8-A Buttonwillow, Kern Co.	8-28-23	2,673	gas well, idle
Milham Explt'n., No. 9 Buttonwillow, Kern Co.	8-28-23	.....	location
Aldrich, D. C., No. 1 Buttonwillow, Kern Co.	12-28-23	Mtl.	grading
Lincoln Drlg. Co., No. 1 Buttonwillow, Kern Co.	6-28-23	190	suspended
Richfield Oil Co., No. 2 Semitropic, Kern Co.	36-27-23	7,004	br. sh. drilling
Stabler, W. W., No. 1 Comanche Point, Kern Co.	23-32-29	3,409	suspended
Elmer Oil Co., No. 1 Shatter, Kern Co.	8-28-25	6,100	suspended
Elmer Oil Co., No. 1 Bena, Kern Co.	15-30-30	2,516	hd. sd. drilling
Elmer Oil Co., No. 1 Rosedale, Kern Co.	33-29-26	2,781	fishing
Taft Drlg. Co., No. 1 Union Avenue, Kern Co.	2-30-27	918	sd. sh. drilling
Shell Oil Co., No. 1 Lerdo, Kern Co.	5-29-27	3,770	recemented
General Pet., No. 1 McFarland, Kern Co.	25-26-25	5,381	hd. sd. drilling
Union, No. 2 San Emidio, Kern Co.	5-10-21	3,450	br. sh. drilling
Currency Pet. Co., No. 1 Jacalitos, Fresno Co.	28-21-14	2,200	sd. sh. drilling
Currency Pet. Co., No. 2 Jacalitos, Fresno Co.	14-21-14	264	sd. sh. drilling
Hornaday & Huggins, No. 1 Kerman, Fresno Co.	32-14-18	3,715	cleaning out
K. C. L. Oil Co., No. 1 Joaquin Ridge, Fresno Co.	7-19-15	114	suspended
Oceanside Oil Co., No. 1 Krayenhagan, Fresno Co.	33-22-17	568	cleaning out
Petroleum Securities, No. 1 Kerman, Fresno Co.	20-20-16	Mtl.	building rig
Petroleum Securities, No. 2 Kerman, Fresno Co.	28-20-16	118	sd. drilling
Union, No. 1 Huasna, San Luis Obispo Co.	34-32-15	3,700	br. sh. drilling
Union, No. 1 North Huasna, San Luis Obispo Co.	12-32-14	3,540	redrilling
Midwest Refining Co., No. 1 Huasna, San Luis Obispo Co.	34-31-15	Rig	rigging up
Panorama Oil Co., Well No. 1, San Luis Obispo Co.	7-31-21	3,864	br. sh. drilling
Garliepp, Fred, No. 1 Betteravia, Ventura Co.	20-10-35	Rig	rigging up
Shell, No. 3 Guadalupe, Santa Barbara Co.	25-10-35	1,698	reaming
Shell, No. 4 Guadalupe, Santa Barbara Co.	36-10-35	1,568	sd. drilling
Shell, No. 2 Goleta, Santa Barbara Co.	36- 5-31	4,201	sd. sh. drilling
Petroleum Securities, No. 1 Goleta, Santa Barbara Co.	.....	2,602	sd. sh. drilling
Union, No. 1 Buel Canyon, Santa Barbara Co.	X- 7-31	1,609	sd. sh. drilling
Western Gulf, No. 1 Point Conception, Santa Barbara Co.	X- 5-33	3,115	oil sand
Standard, No. 1 Point Conception, Santa Barbara Co.	X- 5-34	2,428	suspended
Nevada Standard, No. 1 Goleta, Santa Barbara Co.	10- 4-28	4,350	gr. sd. drilling
General Pet., No. 1 Elwood, Santa Barbara Co.	21- 4-28	3,530	br. sh. drilling
Pacific Western, No. 1 Naples, Santa Barbara Co.	7- 4-29	1,711	sd. sh. drilling
Padre Oil Co., No. 1 Dos Pueblos, Santa Barbara Co.	18- 4-27	3,030	br. sh. drilling
System Oil Co., No. 1 Orcutt, Santa Barbara Co.	36-10-34	2,704	hd. sd. drilling
Keystone Oil Co., No. 1 Santa Maria, Santa Barbara Co.	33-10-34	101	sd. drilling
American Oil Co., No. 1 Summerland, Santa Barbara Co.	33- 4-25	809	suspended
Getty, Geo. F., No. 1 Summerland, Santa Barbara Co.	22- 4-26	5,040	abandoning
Lincoln Drlg. Co., No. 1 Summerland, Santa Barbara Co.	22- 4-26	129	sd. drilling
Keystone Oil Co., No. 1 Surf, Santa Barbara Co.	18- 7-35	Rig	rigging up
Shell, No. 1 Summerland, Santa Barbara Co.	18- 4-25	Mtl.	suspended
Channel Oil Co., Well No. 1, Santa Barbara Co.	29- 4-27	6,304	suspended
Channel Oil Co., No. 1 Fellowship, Santa Barbara Co.	29- 4-27	1,080	cleaning out
Continental, No. 1 Carpenteria, Santa Barbara Co.	33- 4-25	4,130	gas well
Continental, No. 2 Carpenteria, Santa Barbara Co.	33- 4-25	3,360	gas showing
Colusa Oil Co., Well No. 1, Colusa Co.	31-15- 4	615	hd. sd. drilling
Italo American, Well No. 1, Colusa Co.	20-13- 3	760	hd. sd. drilling
North Counties Oil Co., Well No. 2, Humboldt Co.	36- 2- 1	2,205	suspended
Humboldt Oil Co., Well No. 1, Humboldt Co.	6- 2- 1	3,041	redrilling
Applegate & Renshaw, Well No. 1, Merced Co.	24- 6-10	3,721	hd. sd. drilling
Kuhns, H. L., Well No. 1, Merced Co.	8-12-19	440	gr. sd. drilling
Calhoma Oil Co., No. 1 Livermore, Alameda Co.	9- 3- 3	1,549	will test
Shell, No. 1 Dudley, Monterey Co.	15-22- 9	2,880	hd. sd. drilling
Union, No. 1 San Lucas, Monterey Co.	8-22- 8	470	sd. sh. drilling
Marland, No. 1 Bradley, Monterey Co.	32-24-11	5,850	hd. sd. drilling
Tuck Oil Co., No. 1 Los Gatos, Santa Clara Co.	15- 8- 1	852	suspended
Dudley Ridge Synd., No. 1 Tulare, Kings Co.	12-23-19	1,305	gas, shut in
Associates Pet., No. 1 Lewis Creek, San Benito Co.	5-19-10	501	hd. sd. drilling

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Ring Pet. Co., No. 1 Inglewood, Los Angeles Co.	28- 2-14	5,487	abandoned
The Texas Company, No. 1 Clearwater, Los Angeles Co.	8- 4-12	Mtl.	building rig
Petroleum Securities, No. 1 Hermosa, Los Angeles Co.	32- 3-14	5,754	abandoned
Standard, No. 1 Hawthorne, Los Angeles Co.	5- 3-14	4,970	gr. sd. drilling
Circle Oil Co., No. 1 Gardena, Los Angeles Co.	23- 3-14	4,280	suspended
Allied Pet., No. 1 Redondo, Los Angeles Co.	28- 3-14	5,360	sd. sh. drilling
Shell, No. 1 Redondo, Los Angeles Co.	20- 3-14	3,604	sd. sh. drilling
Jackson, R. W., No. 1 Whittier, Los Angeles Co.	19- 2-11	1,477	set pipe
Burlingham Pet. Co., No. 1 Compton, Los Angeles Co.	17- 3-13	2,204	cemented
Hansen, N. J., No. 1 Watson, Los Angeles Co.	17- 4-13	Rig	suspended
Easton & Smith, No. 1 Calabasas, Los Angeles Co.	19- 1-17	2,982	suspended
Pugh Miller Drlg. Co., No. 1 Calabasas, Los Angeles Co.	6- 1-17	2,550	suspended
Russell Oil Co., No. 2 Joughin, Los Angeles Co.	25- 3-17	1,704	recemented
Pomona Oil Co., Well No. 1, Los Angeles Co.	32- 1- 8	1,140	hd. sd. drilling
Beard, G. F., No. 1 Brea Canyon, Los Angeles Co.	30- 2- 9	300	sd. sh. drilling
Anchor Oil Co., No. 1 Puente, Los Angeles Co.	19- 2-10	4,820	suspended
Rucker, R. C., No. 1 Puente, Los Angeles Co.	27- 2-10	1,395	sd. sh. drilling
Urml Oil Co., No. 1 Puente, Los Angeles Co.	31- 3- 8	Rig	rigging up
Shell, No. 1 Coyote, Los Angeles Co.	28- 3-10	2,811	sd. sh. drilling
Prairie Oil Co., No. 1 Montebello, Los Angeles Co.	32- 1-12	1,140	sd. sh. drilling
Monterey Park, No. 1 Jepson, Los Angeles Co.	25- 1-12	4,000	sd. sh. drilling
Union Oil Co., No. 1 Richfield, Los Angeles Co.	13- 3- 9	Rig	rigging up
Southwestern Drlg. Co., No. 1 Richfield, Los Angeles Co.	21- 3- 9	4,780	br. sh. drilling
Anderson, P. B., No. 1 Hasley Canyon, Los Angeles Co.	1- 3-16	490	sd. sh. drilling
So. Calif. Drlg. Co., No. 1 Newhall, Los Angeles Co.	13- 3-16	101	sd. drilling
Pico Dome, No. 1 Hasley Canyon, Los Angeles Co.	14- 3-16	530	hd. sd. drilling
Calif. Eastern, No. 1 Wickham, Los Angeles Co.	32- 5-17	3,517	suspended
Coastline Oil Co., No. 1 Devil Canyon, Los Angeles Co.	21- 5-17	514	suspended
Mesa Pet., No. 1 Newport, Orange Co.	21- 6-10	4,480	gr. sd. drilling
Hall Pet. Co., No. 1 Murrietta, Riverside Co.	23- 7- 3	975	cleaning out
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9- 5- 1	3,245	recemented
Imperial Valley Oil Co., Well No. 1, Imperial Co.	32-11-10	2,980	suspended
Davenport O. & G. Co., No. 1 San Marcos, San Diego Co.	30-12- 8	847	suspended
Turner, S. S., No. 1 Escondido, San Diego Co.	26-12- 2	1,972	suspended

Lea County Well Attracts Attention

Vacuum's Test Making 5 Bbls. Per Hour. Report of High Helium Content in Colorado Well. Wyoming Quiet

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., June 15.—The Vacuum Oil Co.'s No. 1 State, in Lea County, continued to be the outstanding feature in southeastern New Mexico this week, making approximately 5 bbls. an hour at a total depth of 4,693 feet. The Texas Production Co.'s No. 1 Beulah Lynch pumped at the rate of 1,200 bbls. a day on a short test. The Amerada Petroleum Corp. has made a location in Section 19-24-37, and the Gypsy Oil Co.'s No. 1 Mattern is making 5,000,000 feet of gas. One well was abandoned and one new operation was started in the Artesia district in Eddy County. The Continental Oil Co.'s Rattlesnake Dome test in the northwestern part of the state is temporarily on production and making 700 to 800 barrels a day.

A report from Washington that gas containing a large per cent of helium had been found in the Sinbad Valley in Colorado caused considerable interest in that state. The Magnolia Petroleum Co.'s test south of the Colorado line in the Oklahoma Panhandle ran into salt water and put a damper on southeastern Colorado activity. The Five Square Oil & Gas Co.'s No. 1-A State, near Berthoud is making a show of oil with gas at 3,730 feet. The Platte Valley Petroleum Co.'s wildcat on the Greasewood structure in Weld County has an encouraging show of oil and two tests in eastern Colorado in Yuma County, near the Kansas line are getting away to a good start. The Midwest Refining Co. has made a location for a wildcat on the Chimney Creek Dome in Routt County, and commenced spudding in a test on Buffalo Creek in Jackson County. One completion on the Hiawatha Dome in Moffat County, a 1,000,000-foot gasser was made by the Mountain Fuel Supply Co.

Salt Creek had three completions, one completion in the La Barge Field was good for 36 bbls, and 5,000,000 feet of gas was encountered on the Clark Dome, southwest of Casper, by the Prairie Oil & Gas Co. Other Wyoming operations show no important changes.

NEW MEXICO

The Vacuum Oil Co.'s No. 1 State, center of section line between Sections 13 and 14-17-34, in Lea County, southeastern New Mexico, made a spectacular play for a few minutes the past week when the accumulated gas pressure cleaned the hole of the 2,000 feet of oil standing in it. The well is drilling at 4,693 feet at which depth it is making about 5 bbls an hour. When it cleaned itself it made 109 bbls.

The Texas Production Co.'s No. 1 Beulah Lynch, NW cor. SE Section 34-20-34, which has been standing at 3,731 feet since early in April waiting for erection of storage and pipe line, has been tubed and on a 9-hour pumping test produced at the rate of 1,200 bbls a day. After the short test it was shut in. The Texas Pipe Line Co. recently extended its 10-inch line from Winkler County to a point near Jal, in Lea County, where it constructed a pumping station and tankage. It is now making surveys for an 8-mile 6-inch line from the pumping station to the Lynch well, where it has completed a 37,500-bbl. tank. A 3-inch line will be built from this tank to the Henderson, Dexter & Blair's No. 1 McDonald & Jewett, which is being prepared for pumping. The McDonald & Jewett well, SE cor. Section 18-20-34, was estimated good for 300 bbls. a day before it ran into sulphur water at 3,610 feet. It was plugged back to 3,585 feet, and then to 3,575 feet without getting a complete shutoff and it again was plugged back a few feet and at last reports the water had been shut off and preparations were being made for a test. The Pueblo Oil Co.'s No. 1 Crosby, SW SW Section 29-25-37, in the Jal district, which had 500,000 feet of gas at 2,819 feet, picked up more gas, estimated at 1,000,000 feet additional, at 3,060 feet, followed by a considerable increase at 3,065 feet. It is drilling ahead at 3,085 feet. The Empire Gas & Fuel Co.'s No. 1 Martin, SW cor. NE Section 28-20-32, topped the salt at 1,435 feet, set the 10-inch at 1,512 feet and is drilling in salt at 1,575 feet. The elevation is 3,602 feet. The same company's No. 1 Closson, NW SE Section 6-22-36, is drilling at 1,507 feet in anhydrite, and its No. 2-B State, SW SE Section 8-21-35, set the 6⅝-inch at 3,853 feet, total depth, in gray lime. A new location in Lea County is the Amerada Petroleum Corp.'s No. 1 Glazier, SW cor. Section 19-24-37, 5 miles north and 1½ miles east of Cranfill & Reynolds' No. 1 Wilson. Bull & Hagen's No. State, C NE, Section 33-11-35, is shut down at 1,405 feet. The Midwest Refining Co.'s No. 31 Capps, SW cor. Section 3-19-38, an offset on the northeast to the same company's discovery well on the Hobbs High, is drilling at 2,790 feet in anhydrite and preparing to run the 10-inch casing. The base of the salt is at 2,630 feet. Cranfill & Reynolds' No. 1-B State, NE cor. Section 2-21-33, is spudding at 160 feet. and its No. 1 Meyer, NE cor. SE, Section 22-24-36, is drilling at 1,410 feet in lime. The same company's No. 1 Wilson, NE NW NE, Section 23-25-36, in the Jal district, was shot with 60 quarts at 3,345-60 feet and with 15 quarts at 3,395-3,400 feet and is cleaning out. It was plugged back from 3,424 feet to 3,400 feet. The Texas Production Co.'s No. 1 Humphreys, NE cor. SW, Section 18-20-32, bottomed the salt at 2,455 feet and is shut down at 2,590 feet in lime. The Gypsy Oil Co.'s No. 1 Mattern, SW cor. SE, Section 24-21-36, in the Eunice district, is bottomed at 3,580 feet and fishing for rope socket. It is making approximately 5,000,000 feet of sulphur gas. Same company's No. 1 Humphreys, NW cor. SW, Section 25-25-36, is drilling in salt at 1,845 feet. The Midwest Refining Co.'s No. 22 Gregory, NW SE SW, Section 31-25-37, Jal district, is bottomed at 2,750 feet. with the 10-inch cemented at that depth.

Eddy County

In Eddy County, the Pecos Valley Gas Co.'s No. 5 Vandergriff, NE SW SW, Section 5-17-28, in the Artesia district, a new operation, is drilling at 525 feet in lime and gypsum. Livermore, Parker and others' No. 1 Etz, SE NW NE, Section 25-16-30, spudded to a depth of 60 feet and shut down. Flynn, Welch & Yates' No. 56 State, NE cor. Section 6-19-28, which has been shut down at 3,067 feet for several months, has been abandoned at that depth. It had a little gas at 600 feet and another show of gas at 1,875 feet. R. D. Compton, and others' No. 1 Vandergriff, NW cor. NE, Section 33-19-30. is shut down at 170 feet in the red beds. The Pueblo Oil Co.'s No. 1 Lee, NE cor. Section 34-17-29, is drilling at 815 feet in brown lime and had a show of gas at 532-76 feet, and the Prairie Oil & Gas Co.'s No. 2 Keel, SW cor. Section 7-17-31, commenced spudding on June 5. The Midwest Refining Co.'s No. 31 Jones, SW cor. Section 26-19-31, is shut down at 502 feet in the red beds. at which depth first contract was completed. This well was started when there was much uncertainty as to the new policy of the Department of the Interior regarding the extension of permits. It will be drilled deeper as soon as new contract is made. The same company's No. 31 Lane, SW cor. Section 28-19-30, cemented the 12½-inch at 1,352 feet and is waiting for the cement to harden. Leonard & Levers' No. 1 Haggerty, NE cor. NW, Section 18-16-30, is shut down at 3,560 feet, and Flynn, Welch & Yates' No. 2 Gissler, SE cor. SW Section 12-17-30, is drilling at 1,690 feet in gypsum. The Grayburg Oil Co.'s No. 2 Burch, C NW SW, Section 19-17-30, which had 3,500,000 feet of gas at 2,435 and 2,470 feet, is drilling in lime below 2,700 feet.

A location has been made in Lincoln County, just west of the Chaves County line, by the Matador Oil Co. in Section 6-4s-20. There has been very little wildcatting in that area. Another operation not heretofore reported is Samuel Butler, and others' No. 1 Wingo, SE NE SW, Section 17-26-11, in Otero County, which commenced spudding on May 3 set the 15½-inch at 160 feet, and is drilling at 245 feet in shale.

In De Baca County, the Matador Oil Co.'s No. 1 Wood, SW SW, Section 6-4n-20, is drilling at 1,965 feet in red shale, and the Pittsburg Oil Co.'s No. 1 McAdoo, SW cor NE, Section 16-1s-27, is

(Continued on Page 140)

NEW RECORD IN TURNER VALLEY AT RATE OF 1,000,000 BBLS. A YEAR

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, June 15.—Official figures show that in May the Turner Valley Field established a new record production of 88,302 bbls., or at the rate of over 1,000,000 bbls. a year. This is the third successive month to break the record. Production has nearly tripled since the beginning of the year; the monthly output being: January, 38,501 bbls; February, 41,349 bbls.; March, 56,701 bbls., and April, 69,207 bbls. May records an increase of 19,095 bbls. over April.

Increase in production in May was largely due to Home Oil Co.'s Nos. 1 and 2, which in May produced 22,872 bbls. of crude naphtha and 1,633 bbls. of light crude, compared with 2,921 bbls. of crude naphtha and 1,032 bbls. of light crude in April. Home's No. 1 in May established a new record of 900 bbls. in 24 hours, though the average was below this figure.

Detailed production figures for individual wells were:

Imperial Refinery, Crude Naphtha Deliveries

	Bbls. for month	Daily average
Royalite's No. 4	14,161	457
Royalite's No. 7	2,179	70
Royalite's No. 8	5,054	163
Royalite's No. 9	643	21
Royalite's No. 13	214	7
Royalite's No. 14	1,573	51
Royalite's No. 17	4,216	136
Royalite's No. 18	4,595	148
Dalhousie's No. 1	3,337	108
Dalhousie's No. 6	539	17
Home's Nos. 1 and 2	22,872	738
Illinois-Alberta's No. 1	2,058	66
Regent Oil Co.'s No. 1	1,079	35
Total	62,520	

Imperial Refinery, Light Crude

Royalite's No. 10	100	3
Royalite's No. 11	116	4
Royalite's No. 15	355	18
Royalite's No. 17	742	24
Royalite's No. 19	58	2
Royalite's No. 20	827	27
Royalite's No. 21	1,353	44
Dalhousie's No. 5	1,794	56
Foothills' No. 1	2,218	72
Home's No. 1	99	3
Home's No. 2	1,534	49
Okalta's No. 1	8,734	282
Total	18,124	

Regal Refinery, All Del'veries

McDougall-Segur wells	2,036	66
McLeod wells	3,129	101
Spooner Oils' Nos. 1 and 2	1,571	50
United Oils' No. 4	922	30
Total	7,658	2,848

The average daily production for the field is 2,848 bbls.

New McLeod Well

The most important development of the week has been scored by McLeod Oil Co. McLeod's No. 3, LSD 16, Section 1-20-3w5, was brought into production at 4,975 feet, or 223 feet in the deep lime, with an initial production of 13,898,000 feet of wet gas, and a potential crude naphtha recovery of around 150 bbls. This strike follows a remarkable run of hard luck. The test was working some months ago with the diamond drill when 140 feet of rods were lost in the hole. After a protracted fishing job the rods were pulled or sidetracked and the test completed with cable tools, aided by several shots of nitroglycerin. The well was at once put on the separator. Shortly afterward, McLeod's No. 4, same LSD, which was being deepened in the lower producing horizon, doubled its wet gas production to around 18,000,000 feet a day. McLeod's No. 4 some time ago got this second producing horizon at approximately 1,230 feet in the lime, being deepened after the first production in the top of the lime failed to hold up. For some weeks the well showed a recovery of around 70 bbls. On being deepened to 1,241 feet in the lime, a big additional wet gas flow was struck. Crude naphtha recovery increased to 100 bbls. and may be doubled. The tools were removed and the well connected with the separator. McLeod's No. 2, same LSD, is fishing for lost tools at 4,430 feet; this test is already 800 feet in the lime, and will be drilled to the same producing horizon as No. 4. McLeod's No. 1 is making around 50 bbls. a day from the upper horizon in the lime. It is reported that McLeod's No. 5 will be started on the same LSD as soon as Nos. 3 and 4 are definitely completed. No. 4 may later be drilled all the way through the lime, to test the old theory that the crude naphtha and wet gas of the Turner Valley is underlain by a large pool of lower grade crude oil.

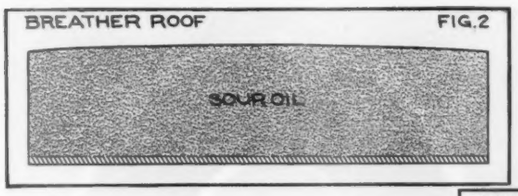
Making 400 bbls.

Home Oil Co.'s No. 2, LSD 14, Section 20-19-2w5, is still clearing itself, pending which no back pressure has yet been applied. With partial crude naphtha recovery it is making better than 400 bbls. a day. It finished 172 feet in the lime at 5,507 feet depth, and practically the same depth in the lime as Home's No. 1.

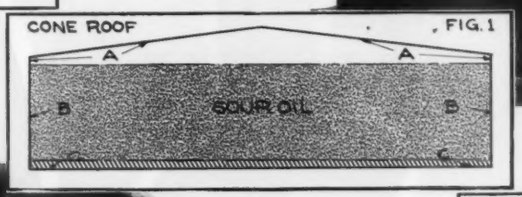
Dalhousie Oil Co.'s No. 1, LSD 4, Section 18-20-2w5, which was temporarily frozen for a short time, is reported to have come back into complete production.

Foothills Oil & Gas Co.'s No. 2, LSD 8, Section 1-20-3w5, is drilling in the deep lime at 4,422 feet. Foothills' No. 3 (Southwest Petroleum), LSD 16, Sec-

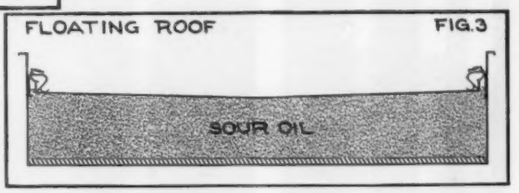
(Continued on Page 132)



At right: Wiggins Breather Roof



At left: Wiggins Floating Roof



What happens inside a tank of "sour" oil?

SOME remarkable stories of rapid corrosion inside tanks of "sour" crude pass unquestioned among those who have had experience with this sulphurous liquid. Some say no tank can hold the stuff.

But what actually happens inside a "sour" oil tank depends on the conditions. Figure 1 in the center illustrates the three sets of conditions in a tank with cone roof. Corrosion is most rapid in the upper part marked "A," where the combination of sulphurous vapor, oxygen and water of condensation is highly destructive of roof and shell plates. The middle section marked "B" is subject only to what might be considered normal corrosion—very much less than section "A". The lower section, marked "C", is exposed to water containing highly corrosive liquids in solution and their action is further hastened by the corroded matter which drops from the roof.

To cut down corrosion inside such a tank, it is obviously desirable to eliminate or minimize the conditions existing at the top and bottom of a cone-roofed tank. Wiggins Roofs accomplish that purpose as shown in figures 2 and 3. With the Breather, the air and vapor above the oil are excluded by filling the tank until the oil pushes the roof up from its low position. No rust drops from the roof to aggravate the condition in the bottom section. Similarly, with the Floater no vapor and air can remain under the deck because it floats directly on the oil. The corrosion of the shell above the floating roof is the same as for ordinary atmospheric exposure.

Wiggins Floating Roofs are designed for working tanks and the Breathers for standing storage. The reduction in corrosion is only one advantage of these roofs. They are ordinarily considered primarily because they stop evaporation losses and afford excellent protection from fire. Our nearest office will quote on either type for old or new tanks.

STOP CORROSION LOSSES with WIGGINS ROOFS

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Cleveland..2204 Union Trust Bldg.
Chicago.....2128 Old Colony Bldg.
Detroit.....1514 Lafayette Bldg.
Philadelphia..1615 Jefferson Bldg.
San Francisco.....1054 Rialto Bldg.
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OGJ 6-20 Gray

30

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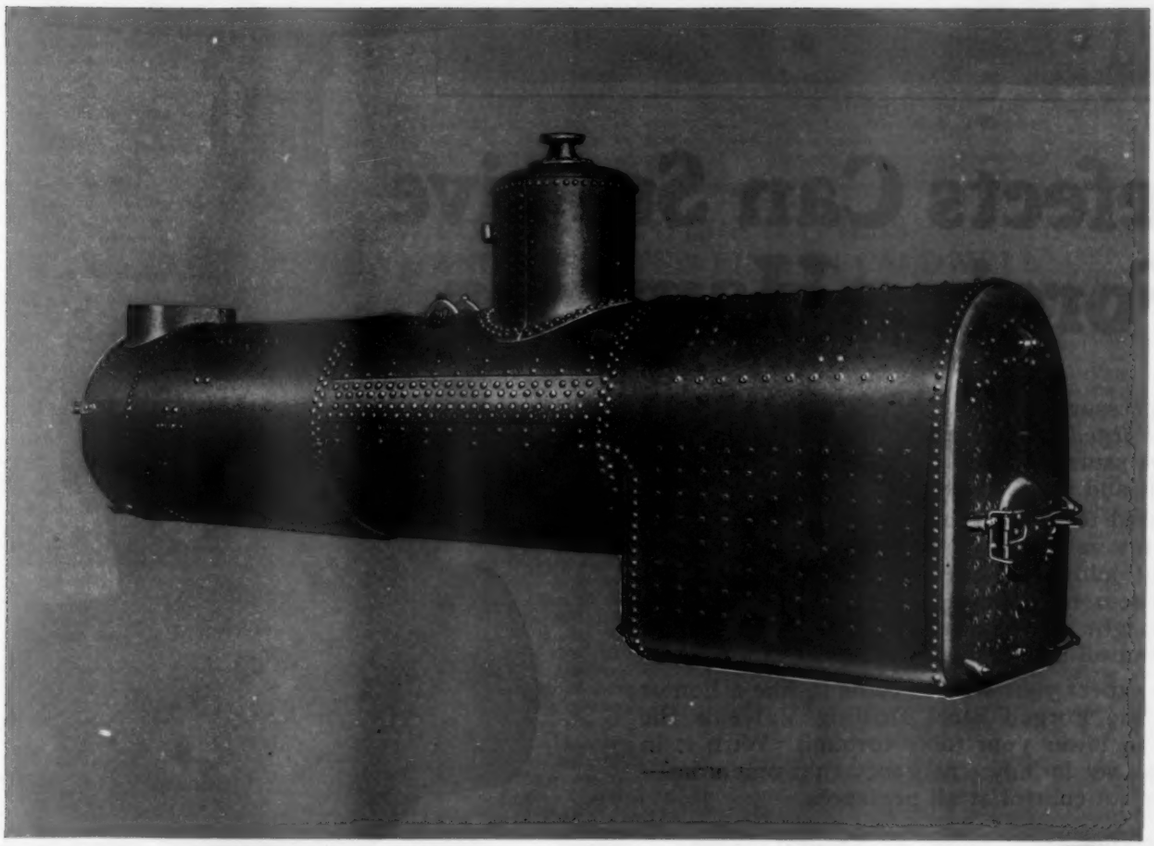

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No Defects Can Survive the Forging Hammer

And no high pressures will ever find a weak spot in the new Darling *Forged Steel* Drilling Gate Valve, for it's made from the same metal and by the same process as the finest tools and high-speed machine parts.

Being hammered to shape and machined to perfection, this new drilling valve has an extremely high factor of safety without additional weight. You're assured of complete freedom from piping, sand holes or porous spots which might give way under pressure to start a havoc of wasted oil and gas.

Whether you expect your well to come in like a lion or like a lamb, the Forged Steel Drilling Valve is the *logical* valve to lower your tools through. With it in place, you're all set for any emergency that may arise—assured of perfect control at all pressures.

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DARLING
FORGED STEEL GATE VALVES

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Sale of West Virginia Properties

Reno Oil Co. Purchases Ritchie and Doddridge County Leases from Imperial Oil & Gas Products Co. of Pittsburgh

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., June 17.—The Imperial Oil & Gas Products Co. of Pittsburgh has sold its properties in Ritchie and Doddridge Counties, West Virginia, to the Reno Oil Co. of Sistersville, W. Va. The property consists of leases on a large amount of territory, on which there are 125 wells with a settled production. The purchase price is said to have been a cash consideration in excess of $350,000. The Reno Oil Co. is one of the oldest operating companies in the East, and it will no doubt proceed to further develop the acreage, which the steady demand and market for Pennsylvania crude encourages. No other transaction of such magnitude has taken place in the eastern fields in a number of years, in fact very few properties are changing hands at this time.

There were numerous completions during the week, with but one of any considerable size and that was in the deep sand territory in southeast Ohio. The completions from West Virginia were gratifying but of the average size. In southwest Pennsylvania, there was one additional completion in the one-time sensational pool in Buffalo Township, Butler County, which has brought in but average wells since the completion of the large gas wells previously reported. Also in the southwest Pennsylvania fields, it is unusual to note that the Manufacturers Light & Heat Co.'s No. 5 on the Day farm, near Prosperity, Washington County, is now flowing at 110 bbls. a day, having continued at that rate or better during the past four months.

Southeast Ohio

The best completions for the week begin with the Hope Construction & Refining Co.'s No. 7 on the W. E. Helphrey farm, Jackson district, Muskingum County. It was drilled to the Clinton and produced 205 bbls. the first 24 hours after shot. A fair well was brought in in Section 1, southeast quarter, Hopewell Township, Licking County, where the Pure Oil Co. completed its No. 3 on the E. S. Loughman farm to the Clinton at 3,120 feet, and after shot it produced 40 bbls. the first 24 hours.

In the shallow sands of Medina County, the East Ohio Producing & Refining Co. brought in No. 3 on the Steve and Anna Elenchich farm, Lot No. 2, Section 12, Chatham Township, at 333 feet, and it produced 25 bbls. the first 24 hours after being shot. In the same township and county, T. W. Brinker farm, Lot 6, Section 16, the Oko Oil & Gas Co. completed No. 23 to the sand at 346 feet and it made 15 bbls. the first 24 hours after shot.

In the SE Section 5, Harrison Township, Perry County, the Ohio Fuel Gas Co. completed its test on the John Combs farm to the Clinton and it produced 55 bbls. the first 24 hours after shot. In Guernsey County, in the SW Section 4, Cambridge Township, the Gordon Oil Co. and others completed and shot in the Niagara Lime a test on the M. L. Spaid farm good for 35 bbls. a day. In this same township but in the southeast quarter of the same section, the Preston Oil Co. completed a test in the same sand on the P. M. Ashley farm, and it produced 25 bbls. the first 24 hours.

Hocking County

In the NW Section 11, Washington Township, Hocking County, the Preston Oil Co. completed and shot in the Clinton sand, No. 5 on the Carl C. Harden farm, a 10-bbl. pumper. In the same township but in Section 13, Ennis Brothers completed their test on the A. Riggs farm to the Clinton at 2,967 feet and have a showing for a light pumper. In the NE Section 22, Ward Township, Hocking County, the Preston Oil Co. completed in the Clinton sand No. 1,282 on the Sunday Creek Coal Co.'s property. It is dry in all sands.

Washington County

On Cow Run, Section 14, Lawrence Township, the First National Bank of Marietta has completed in the first Cow Run sand No. 64 on the J. D. Lehmer farm, good for not more than 2 bbls. In Section 27, Aurelius Township, Washington County, Jerry Buckley has a duster in the Keener sand at a second test on the B. N. and Andrew Hupp farm. In Lawrence Township, J. T. Campbell and others have a duster on the F. C. Barton farm. In Section 29, Independence Township, Harry Binegar has started to drill on the Schembalch farm. In Wesley Township, the G. S. C. Oil & Gas Co. is drilling on the William Rush farm. In Section 16, Ludlow Township, Homer Newhart & Co. are due in the sand on the George Armstrong farm. In Newport Township, Mendenhall & Co. have started to drill on the Raas Mendenhall farm. In Fearing Township, Charles Wirth & Co. are drilling on the E. C. Kidd Farm.

Licking County

In Section 1, Perry Township, Licking County, Kundtz and Hulse, Inc. completed No. 9 on the Joseph Chaney farm to the Clinton at 2,925 feet and after shot it produced 5 bbls. the first 48 hours. In the same county, Section 23, Madison Township, the Preston Oil Co. completed a test on the S. E. Walpole farm to the Berea at 735 feet and it produced 5 bbls. the first 24 hours after shot.

Athens County

Three miles north of Canaanville, Section 18, Canaan Township, Athens County, Charles F. Fox has completed in the first Cow Run sand a second test on the Lena Bean farm. It is showing for a 10-bbl. pumper. One quarter mile north of Amesville, in Section 31, Ames Township, Bode and others have completed No. 2 on the R. D. Jones farm. It is a light gasser in the stray sand below the Berea grit. In this same section, the Wiser Oil Co. completed their test on the O. D. Jones farm. It is a duster in the stray sand below the Berea grit.

Vinton County

In Section 6, Vinton Township, Vinton County, Townsend & Co. have a duster on the Elmer Petty farm. In Section 3, Knox Township, the Co-operative Oil Co. have a very light pumper in the Berea grit in their No. 3 on the Garfield Crooks farm. At Bollen Mills, Section 1, Knox Township, Townsend and others have completed No. 3 in the Berea grit on the David Houston farm. It is dry in the formation named.

Shallow Sand Pumper

In the NW Section 16, Enoch Township, Noble County, Adam Nau and others have completed their test on the Jacob Huffman farm to the Macksburg stray sand, a light pumper good for about 2 bbls. In Section 13, Marion Township, Morgan County, 2 miles south of Chesterhill, W. S. Harris completed No. 6 on his own farm in the first Cow Run sand and it is a duster. One half mile east of Amesville, Ames Township, Athens County, D. T. Orndoff completed a test on the Charles Greer farm, a fair gasser in the stray sand below the Berea grit.

In other sections of southeast Ohio, scattered wells were reported. In Rush Creek Township, Fairfield County, Murl and Myers completed a 3 or 4-bbl. pumper in the Clinton sand on the J. J. Johnson farm. In the same district, the Hope Construction and Refining Co. is drilling in the Trenton rock at a depth of 4,800 feet on the W. S. Black farm. In Pike Township, Coshocton County, the Ohio Oil Co. has a 5-bbl. pumper at No. 4 on the Roy Rine farm. In Section 32, Knox Township, Columbiana County, George Kiel completed a light pumper as his No. 12 on the Owen Brooks farm. In Jackson Township, Muskingum County, the Pure Oil Co. is drilling on the C. D. Anderson farm. In Marion Township, Morgan County, the Ohio Fuel Supply Co. is drilling on the Thomas Newburn and Paul Worrell farms. The Bowman Oil & Gas Co. is drilling on the George Carr farm. In Reading Township, Perry County, the Preston Oil Co. is drilling on the William Hummell farm, and has a rig up on the L. Miller farm, and rig timbers on the Charles Spohn farm. The Planet Oil Co. and others are drilling on the C. T. Palmer farm.

Two additional wells are being drilled in Meigs County. On Lot 282, Sutton Township, the Preston Oil Co. started No. 3 on the Robert Crow farm, and on the NE Section 11, same township, the Twenty Five Associates, Inc. started No. 10 on the William Carnahan farm.

WEST VIRGINIA

The West Virginia fields completed a few better than average pumpers. In DeKalb district, Gilmer County, the South Penn Oil Co. completed No. 7 on the F. E. Amos farm to the Maxon and it is showing for a 25-bbl. pumper. In Sherman district, Calhoun County, Godfrey L. Cabot, Inc. completed a fair well to the Maxon on the W. T. Rafferty farm. It is his No. 8 and good for a 15-bbl. producer.

On the waters of Mud River, 1 mile east of the town of Milton, Grant district, Cabell County, the Harshbarger Oil & Gas Co. completed and shot in the brown shale on the C. A. Johnston farm a gasser good for 300,000 feet. On Merritts Creek, McComas district, the West Virginian Gas Corp. completed and shot in the same formation No. 21 on the Albert Hensley farm. The location is a quarter mile east of the same company's No. 13 on the Childers farm and it is good for 250,000 feet of gas.

Kanawha County

At the headwaters of Tacketts Creek, Jefferson district, Kanawha County, the Charleston-Dunbar Gas Co. completed their test on the Addie Wiseman farm to the Berea grit and it is a gasser good for 400,000 feet, located 3,000 feet east of the same company's test on the Paul Wirt farm. On little Paw Paw Creek, Paw Paw district, Marion County, the Owens Bottle Co. completed a test on the Minnie Wilson farm through the Gantz sand at 2,434 feet. The hole filled up to the Injun at 1,978 feet and is showing for a fair gasser.

In Geary district, Roane County, the Virginia Gas & Oil Co. completed No. 8 on the L. D. Boggs farm to the Injun showing for 5 bbls. In Clay district, Monongalia County, near Mooresville, the

(Continued on Page 127)

NEW POOL IN WESTERN DAVIESS AND REPORTED FIND IN CALDWELL

By Whit
Staff Correspondent, Kentucky-Tennessee

OWENSBORO, Ky., June 17.—The completion of another important test in the extreme western portion of Daviess County, by Miller and Damron, (the Creek Drilling Co.) looks as though a new and important pool had been uncovered. First came the initial test on the Hamilton farm, near St. Joseph, which came in with a production reported at 75 bbls., and now the second venture in the immediate vicinity on the L. M. Powers farm, drilled by the same parties, is reported showing equally good. The rig for the third test is moving on the Clayton farm, an offset to the Hamilton well, and drilling will be started at once. Miller and Damron announce that the well is west of the well on the Powers farm and will test additional territory. This firm holds leases on approximately 5,000 acres in that area, and believes it has opened up a pool by the drilling of the Hamilton and Powers farm wells. This firm discovered the Utica Pool, same county, which has been the most productive in Daviess County and it believes the St. Joseph Pool will eclipse the Utica Pool.

Wildcatting in western Kentucky is extending now that roads and weather have improved. It is thought there are possibilities of rich pools on the north side of the Kentucky-Tennessee line.

Word comes from Princeton, the county seat of Caldwell County, which adjoins Hopkins County on the west and south, that the Missouri-Kansas Pipe Line Co., drilling for gas on the McNeeley farm, in the southwestern portion of that county, struck a gas well at a depth of 640 feet, and after tubing, it flowed oil through the tubing, reported at 75 bbls., which is only hearsay, it may at least make a fair producer, opening territory that was looked upon as worthless for either oil or gas. The company has a block of approximately 1,800 acres under lease and will continue further test work. This company also has started a well in Muhlenburg County, in what is known as the Greenville Field, opened some weeks ago when the Ohio Oil Co. struck a large oil producer on the R. O. Kennedy farm. The Missouri-Kansas Pipe Line Co. drilled its well on the McNeeley farm, in Caldwell County . . hopes of opening a gas field, with a view of piping it across the Kentucky state line to Nashville and other Tennessee towns.

The new Greenville Field in Muhlenburg County, the two good wells in the St. Joseph Pool, in Western Daviess County, and the outlook in Caldwell County are keeping the oil scouts busy.

Week's Work

A summary of the week's work in the Kentucky fields shows 17 completions, 13 producers with an initial production of 502 bbls., 3 dry holes and 1 gas well.

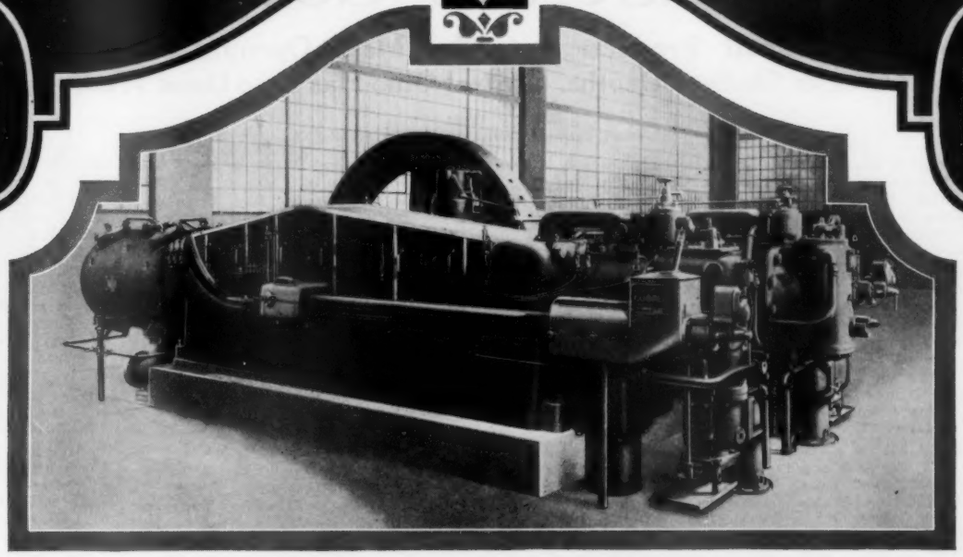
County—	Oil Comp.	wells	Prod.	Dry	Gas
Ohio	8	7	305	0	1
Daviess	7	5	182	2	0
Caldwell	1	1	15	0	0
Allen	1	0	0	1	0
Total	17	13	502	3	1

Ohio County Wells

An exceptionally good gas well was drilled by J. Leonard Daniel on the T. J. Hoover farm, 2 miles west of the Bartlett Pool, and west of Taffy, in Ohio County at a depth of 410 feet, and will not be drilled any deeper at this time. The gas was found in a stray sand. Mr.

(Continued on Page 127)

Their Golden Anniversary
SUCCESS IS LARGELY A MATTER OF CHOOSING WISELY



HOW many men buy an automobile on the basis of cold dollars-and-cents' analysis of the operating service it will deliver? If a man fails to choose the most efficient car for the money, the loss is his own and he receives no censure from anyone.

But in the purchase of gas engine and compressor equipment, no man can afford to let his choice be influenced by hunches, back-slapping or spontaneous enthusiasm.

Men who turn the searchlight of analysis on operating records and actual experiences of users invariably recommend the purchase of Cooper engines and compressors. And Cooper buyers are in the majority.

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YOU'RE ALWAYS SAFE IN CHOOSING A COOPER

Oil Found in Scioto County Wildcat

Only Small Producer but May Mean Opening of New Area at Shallow Depths. Central Ohio Has Two Good Wells

By Whit
Staff Correspondent, Central West Fields

FINDLAY, Ohio, June 17.—One of the interesting strikes since the last review of the Central West Fields was the finding of oil in a wildcat venture by the C. L. Williams Oil & Gas Co., on the George L. Davis farm, 8 miles north of Portsmouth, Scioto County, Ohio, and on the Scioto Trail. While this well is only a small producer it is of more than minor importance as it may mean the opening of an entirely new producing area at very shallow depths as the Davis well was drilled to a depth of only 350 feet, the top of the Berea being found at 170 feet from the surface and continued down to a depth of 305 feet, and then 45 feet deeper. The well was given a 70-quart shot and made 2 bbls.

The two best oil producers recorded in the Central Ohio area were No. 11 on the George Crawford farm, in Muskingum County, with an initial of 155 bbls., and another on the Wilson farm in Coshocton County for 102 bbls.

In the old Lima Field of northwestern Ohio another good producer has been uncovered that should bring about considerable new work. It is J. H. Murphy and Son's test on the Charles B. Miller farm, Section 31, Pleasants Township, Seneca County, in the Tiffin Field. The well is reported to have flowed at the rate of 10 bbls. an hour and is pronounced better than 200 bbls. in 24 hours, making it the best for months in that particular county. Murphy was the discoverer of the Murphy Pool, in Liberty Township, same county, where many large wells were completed and it looks now as though they have uncovered another spot that may bring about considerable new work during the latter half of the year.

In Jackson Township, Seneca County, almost north of Fostoria, the Columbus-Tiffin Oil & Gas Co.'s No. 3 in the northwest corner of the T. H. Ropp farm, in the NW Section 18, topped the Trenton at 1,200 feet and at 30 feet in, total depth 1,230 feet, showed an initial of 8 bbls.

In Biglick Township, Hancock County, in the Findlay Field, Robert Mitchell, trustee, drilled No. 3, 200 feet from the south line and 800 feet from the west line of the Alva Beard, on the oil map as the D. and R. Moore farm, in the SW Section 16, which produced an initial of 40 bbls. under pump. Trenton was topped at 1,243 feet and drilled 43 feet in the sand to a total depth of 1,286 feet. In the eastern part of this county, Watts and Harmon are drilling on the Harley Etherton 76 acres, Section 7, Delaware Township, in what is known as the Wharton Field.

Wyandot County

A fairly good flow of gas was struck on the Mrs. Carrie Pickett farm, in Section 17, Richland Township, Wyandot County, and in the Wharton Field, by the Wharton Oil & Gas Co., composed of 20 Wyandot County men, including Upper Sanduskians, and the drilling was done by Henry, Temple and Kennedy, of Findlay, Ohio. A record of this well is: "This Pickett well was drilled 300 feet from a well drilled 40 years ago and at that time the report was that the escaping gas from this old well could be heard for more than a mile. This old well, however, was never used but was immediately plugged and shut off when drilled in, according to the reports of pioneers still living thereabouts. The old well was known as the Cole well No. 1 and was on the south side of the Swamp Ditch. This Cole farm is now known as the Kear farm, and the Kear No. 1 was drilled in about a year ago. The Kear No. 1 is on the south side of the Swamp Ditch and is about 800 feet south of the Carrie Pickett No. 1 just completed. In the Pickett well is 14 feet of drive pipe, 317 feet of casing; top of Trenton at 1,296 feet, drilled 55 feet in the sand to a total depth of 1,351 feet and shot with 200 pounds, was good for close around 250,000 feet. There is some water in the Pickett well, presumably from the old Cole well not being properly plugged, but with proper care this well will make considerable gas.

Drilling operations for oil and gas are expected to be started shortly in Delaware Township, Hancock County, and also in the western part of Wyandot County. A. G. Talbot, Inc., of Chicago, has taken over about 25 leases in that section of the two counties for drilling. Each lease has around 100 acres. Connected with the above named concern are Watts and Harmon, oil and gas operators of Mansfield, Ohio. The following is a report of this company's No. 2 on the O. S. Bell 362 acres in Section 13, Delaware Township, Hancock County, about 700 feet west and 200 feet north of the No. 1 well on the same farm. The drilling work was done by Henry, Kennedy and Temple, of Findlay, Ohio. In this well 16 feet of drive pipe was used and 302 feet of casing. Trenton was topped at 1,285 feet and sent 30 feet into the Trenton, total depth 1,315 feet, and shot with 100 quarts, was estimated good for 125,000 feet of gas. The Etherton drilling well is in the southwest corner of the farm and about 800 feet northeast of No. 1 on the O. S. Bell farm.

Twenty-two completions were reported from the Central Ohio fields, of which eight were producers with an initial of 333 bbls., nine dry hole and five gas wells. There were 19 new locations staked and 29 new wells started drilling, a total of 48, indicating there is no let-up in the hunt for both oil and gas. The new work being done in the Berea sand areas of Lake and Mohican Townships, in Ashland County, along with Clinton Township, Wayne County, will bring about activity now that an oil-gathering line has been put into the field giving a ready market for the crude and gathering lines will no doubt soon be started by the gas companies. The gas volume is not so large but what there is can be used to good results.

In Ashland County, Orange Township, the Logan Gas Co.'s No. 2-3,098 on the Mary V. Sharrick, Section 21, developed a good gas producer from the Newburg sand. The Kemrow Co. is starting a test on the Ben Evil farm, Section 29, same township. Same company is starting a test on the Henry Miller farm, in Jackson Township. Ohio Fuel Gas Co. made two locations in this township for No. 1-3,620 on the James Hess, Section 30, and No. 1-3,621 on the S. V. Plice, Section 29. In Sullivan Township, the Logan Gas Co. reports a dry hole in No. 2-3,081 on the A. J. Crile, Lot 97. In Lake Township, Harmon & Geiger's test on the Wikoff McFarland, Section 14, is reported a dry hole, and B. Slagel or the Cumberland Petroleum Co. has one on the George Ullman, Section 18. Preston Oil Co. made a location for a second test on the Ellis A. Morres, Section 3. Kemrow Co. is drilling No. 1 Thomas K. Long, Section 8, and Robinson and others are drilling on the J. A. Heffelmyer, Section 16. Logan Gas Co. drilled a dry hole in No. 2-3,091 on the John E. Finley, Section 9, Mohican Township. In Perry Township, Coast and others' No. 4 on the Ed Barnhart, Section 29, is credited with only a production of 2 bbls.

In Medina County, Ray Jones and others' test on an unknown lease, in the NE of Lot 6, Harrisville Township, is reported good for an initial of 20 bbls. In Harris Township, the Ohio Fuel Gas Co.'s No. 2-3,517 on the Mary Towslee, Lot 151, is a duster. Same company made a location for a second test on the Jesse V. Flickinger, Lot 59, Westfield Township.

Duster in Lorain

In Lorain County, Carlisle Township, a dry hole was drilled by the Logan Gas Co. in No. 2-3,096 on the James Malik lease, Lots 8 and 9. Ohio Fuel Gas Co. is drilling No. 1-3,603 on the Paul Roling, Lot 23, same township.

In Wayne County, Congress Township, the Ohio Fuel Gas Co. started to drill No. 1-3,606 on the M. Fulton, Section 13, and made a location for a second test on the C. J. Warner heirs, Section 28, also for No. 1-3,626 on the Jasper Vickers, Section 6, same township. Same company staked a location for a second test on the Paul D. Goudy, Section 8, Chester Township.

In Holmes County, the Logan Gas Co. has started drilling No. 1-3,099 on the Saville Herman, Section 29, and made a location for No. 1-3,102 on the Charles Garver, Sections 6 and 15, Paint Township.

In Richland County, the Ohio Fuel Gas Co. has started drilling No. 2-3,499 on the Verda Rush, Section 8, Worthington Township.

In Knox County, Brown Township, a nice gas well was found by the Ohio Fuel Gas Co. in No. 4-3,489 on the Millie S. Long, Section 4. Poorman and others are drilling No. 4 Isaac Miller, Section 5, Clay Township.

In Coshocton County, Clark Township, the Pure Oil Co. is drilling No. 1 Arthur Eppley farm, and in Perry Township Hulse & Kundtz are drilling on the Cordia Speckman and others' farm, Section 4.

In Summitt County, Franklin Township, the East Ohio Gas Co. has a light gas well on the F. H. Mason, Section 14. Same company is drilling No. 1 John M. Weaver, Section 25, and No. 1 on the Elton H. Daily, Section 26, same township. F. A. Brendall and others are drilling on the Charles E. Wise, Section 24, also working on the Charles Smith, Section 34, both in the same township. Same firm is drilling on the O. F. Kepler, Section 8, Greene Township. Morgan, Houge and others are getting ready to start a second well on the Samuel Harring, Section 17, same township. In Spring Township, F. A. Brendall and others found a dry hole on the William Dreese, Section 5.

In Licking County, Perry Township, Sterl Brown's No. 3 on the Ethel Frost, Section 14, is reported good for 5 bbls. at from 638-46 feet, the well also showing some gas. Emerald Petroleum Co. made a location for No. 5 on the John W. Little, Section 8, Fallsburg Township. Heisey Gas Co. has a light gas well in No. 2 on the Joseph Davies heirs, Section 7, Licking Township, at from 1,300 to 1,350 feet.

Good Well in Muskingum

The Pure Oil Co.'s No. 11 on the George Crawford, Section 4, Jackson Township, Muskingum County, had an initial production of 155 bbls. at from 2,910-56 feet. Atha Drilling Co. is drilling on the J. O. Hall, Sections 14-15, Union Township, and in Highland Township the Wehrle Oil Co. is drilling on the Melvin R. and Etta Emlerl, Section 17.

In Athens County, Ames Township, Charles Fox and others have a light gas well on the Robert Bean, Section 13. Ohio Fuel Gas Co. made a location for No. 3-3,625 on the John Fleming, in fractional Section 2. Same company is drilling No. 12-3,598 on the Black Diamond Coal property, Section 23, Berne Township. Smith and Thomas are drilling deeper No. 2 on the C. C. Curtis, Section 2, same township. The Ohio Fuel Gas Co. is drilling No. 1-3,520 on the J. E. Gifford, Section 34, same township. In Lodi Township, the Logan Gas Co. has a light gas well at No. 1-3,078 on the Letta V. McLaughlin, Section 6, in the lower Berea at from 1,637-49 feet, total depth 1,659 feet. Ohio Fuel Gas Co. is drilling No. 1-3,593 on the Francis F. Sargent, fractional Section 36, and made a location for No. 1-3,594 on the E. L. Sargent, fractional Section 1. Three Way Oil Co. is drilling on the S. C. Cross, Section 9, Lee Township, same county.

In Meigs County, Sutton Township, the Preston Oil Co.'s No. 1-948 on the Robert Crew, Section 23, by drilling a little deeper, found a 5-bbl. pumper in the upper Berea sand at from 1,800 to 1,819 feet. Tyree and others' No. 9 on the W. C. Carnahan, Section 11, produced 5 bbls. initial from the first Cow Run sand at from 596-611 feet. R. C. Miller and others' No. 3 on the David B. Cross, Section 17, is reported good for 10 bbls. in the first Cow Run sand at from 570½-92 feet. C. W. Curwood is reported at work on the Thomas Wolfe, Section 10, same township. In Bedford Township, the Ohio Fuel Gas Co. made a location on the W. L. Whaley, fractional Section 18, also for a second test on the John Heidter, Section 32, same township.

In Jackson County the only change is that the Ohio Fuel Gas Co. is starting at No. 2-3,564 on the Peter Radcliff, Section 2, Franklin Township.

Vinton County

In Vinton County, Knox Township, Townsend and others are drilling No. 3 David A. Huston, Section 1, and the Cooperative Oil Co. is starting No. 4 on the Garfield Brooks, Section 3. In Elk Township, the Ohio Fuel Gas Co. made a location on the B. Herrold, Section 3, also a location for No. 1-3,374 on the Addie Vickers, Section 2, Eagle Township. Southern Oil Co. is drilling No. 3 on the John C. Brown, Section 3.

In Starke County, Lawrence Township, the Penn Oil & Gas Co.'s test on the A. M. Nichter, Section 4, is estimated close around 1,000,000 feet. No. 2, same farm, is drilling.

In Guernsey County, Cambridge Township, George Jewell and others' No. 1, on the M. L. Spaid, Section 4, is estimated at 34 bbls. initial. In this well the top of the Niagara lime was found at 3,250 feet, and the Lime sand from 3,377 to 3,383 feet, where the oil was struck. Logan Gas Co. made a location on the Loren C. Stocker, Section 9, Wheeling Township. Ohio Fuel Gas Co. is drilling on the W. H. Sheeley, Section 10, Knox Township, same county.

In Belmont County, Richland Township, Frank Stranges and others are drilling No. 4 Rehn-Overbaugh farm, Lots 34 and 28. In Somerset Township, W. C. McBride, Inc., is drilling on the J. J. Jones, Section 1, and Patterson and Peters made a location on the John A. Vogut, Section 31. C. D. Crouch and others drilled a dry hole on the Jacob and Mary Davidson, Section 14, Colerain Township, in the Berea at from 1,930 to 1,963 feet; total depth 2,020 feet.

In Morgan County, Marion Township, Farm Oil Co. struck a good gas well in a

(Continued on Page 127)

THE GOODRICH SILVERTOWN

Oil Field Special

invades the city streets

BUILT to withstand the mud ruts, the sun-baked hills and prairies, and day-and-night driving of oil fields . . . this bull dog of a truck tire now challenges the casing-breaking, bumpy side streets, the sizzling pavements, the bruising curbs and weather-washed gutters of the city's worst streets.

A Special Tire for Heavy Hauling *and* Rough Roads

Dual Oil Field Specials on rear and singles on front replace solids for faster hauling. Photo shows seven new Oil Field Special equipped trucks owned by Mankins Lumber Co., of Oklahoma City, Okla.

A HEAT-RESISTING, fast-rolling pneumatic tire for heavy hauling. A super traction, super *mileage* tire.

Tenacious and *tough!*

Tested *under* over-loads. Proven *over* obstacles never to be met in ordinary truck service.

Such a tire is the Goodrich Heavy Duty Oil Field Special—the bull dog of the great open spaces!

Originally designed for the rigors of oil field service, it is now being extensively used in cities everywhere on heavy delivery trucks. Wherever heavy hauling, speed and unimproved roads combine against tire service, this burly brute of traction will roll up care-free mileage records.

For traction . . . for mileage in general trucking service . . . on good roads or bad . . . the Goodrich Heavy Duty Oil Field Special will out-*pull* and out-*perform* all ordinary makes of truck tires.

The B. F. Goodrich Rubber Company, Established 1870, Akron, Ohio. Pacific Goodrich Rubber Company, Los Angeles, Calif. In Canada: Canadian Goodrich Company, Kitchener, Ontario.

5 SPECIAL ADVANTAGES FOR OIL FIELD SPECIALS

1. Unusually strong carcass of *re-inforced* construction.
2. Rows of "teeth" like the under-shot jaw of a bull dog give *added* traction from sides of ruts.
3. Top tread areas equal to assure traction and *even* wear on smooth roads.
4. *Twin* beads fit the tire snugly to rim and help resist "side-roll" wear.
5. The tire toughened *throughout* by the famous Goodrich "water cure."

SPECIFY GOODRICH ON YOUR NEXT TRUCK

Goodrich

Oil Field Special

HEAVY DUTY

Silvertowns

May Have New Shallow Pool in Pecos

Two Tests, With Good Showings, Make Area 3½ Miles Long Appear Promising. Hendricks Extended

By L. E. Bredberg
Staff Correspondent, West Texas Fields

FORT WORTH, Tex., June 17.—Reports from West Texas show the Taylor-Link Oil Co.'s No. 1 University, Pecos County, estimated good for about 75 bbls. daily. Buell & Hagan's No. 1 University, same county and a short distance from the Taylor-Link well, is also showing up good, swabbing 28 gravity oil from a total depth of 1,332 feet. Over in Howard County, Gibson & Johnson's No. 1 Read is standing with 1,700 feet of oil in the hole from pay at 2,703-08 feet, total depth 2,716 feet.

Taylor-Link's No. 1 University, located in the SW cor. of Section 30, Block 16, University Survey, shut down at 1,625 feet for storage, is heading every six hours, making 15 bbls. per head, from pay topped at 1,613 feet, a different pay from that encountered at 935 feet, where there was a show of dead oil. At 1,195-1,205 feet an estimated quarter of a million feet of gas was encountered, and when the well was shut down at 1,210 feet bailed 22 bbls. of dead oil after standing five days. Gravity of the oil tested 27.6 (corrected).

Buell & Hagan's well in the SE of Section 36, Block 18, University Survey, Pecos County, is also striving hard to make a commercial producer from a total depth of 1,332 feet, where it is swabbing 28.0 gravity oil. It is swabbed down every day, and the hole fills approximately 350 feet over night.

These two tests are only 3½ miles apart, from southwest to northeast, and with the showings already made by these tests and other tests in this immediate area which have encountered good showings of oil and gas, the area looks very promising of opening a new shallow pool, although the Transcontinental Oil Co.'s No. 2 University, located in the SW of Section 9, Block 17, University Survey, 2½ miles east of the Buell & Hagan well, was abandoned this week at a total depth of 2,440 feet.

In another part of this county, the Atlantic Oil Producing Co. and others also encountered a showing in their No. 1 Trees, 330 feet from the north and 990 feet from the west lines of Section 108, Block 8, H.&G.N. Survey. This is in the northwestern corner of the county. The slight showing of oil was struck at 1,570-76 feet, but when drilling deeper at 1,620 feet no further showings were encountered, and the first show did not increase.

Pecos Pool Producer

The Pecos Valley Pool registered a small producer during the week when M. H. Black's No. 1 Pecos Valley Oil Co. was completed for a 13-bbl. well, pumping. Top of the pay of this well was 1,618 feet, and the total depth is 1,648 feet. It is located 2,310 feet from the southeast and 1,650 feet from the southwest lines of Section 22, Block 10, H.&G.N. Survey, same section as the discovery well of this shallow pool, which is approximately 17 miles northeast of Fort Stockton.

The eastern edge of Howard County looks good for a pool around Gibson & Johnson's No. 1 Read in SE cor. of Section 47, Block 30, Township 1n, T.&P. Survey. It has been bailing from a total depth of 2,716 feet, and now stands with 1,700 feet of oil in the hole, coming from the pay from 2,703-08 feet. This indication looks very good for a pool opener in this part of the county, where the nearest production is over in the adjacent county of Mitchell, on the California Co.'s Foster lease, about 4 miles southeast of this new discovery.

Plat showing section of Ward County which is an interesting area in the West Texas district. Penn and Atlantic's No. 1 Pecos Mercantile Co., shown in Section 16, Block 34, is located on a separate and individual structure from that of the Shipley Pool in Section 17, Block 5, 6 miles to the south, and the test will be watched closely, especially by geophysical experts, for the structure was said to have been discovered by geophysical experiments and work.

Group No. 1's (Texon Oil & Land Co.) 1-B University, Reagan County, raised its previous peaks again this week by topping the gauge at 2,625 bbls. after setting a previous gauge of 2,619 bbls., and a daily average of 24,042,285 feet of gas was a rise of 100,142 feet during the week.

Emerald Oil Co.'s No. 1 J. S. Read, 990 feet west and 330 feet north of the SE cor. of Section 135, Block 5, H.& G.N. Survey, Garza County, is endeavoring to prove itself a commercial producer by swabbing 35 bbls. of oil and 1 bbl. of salt water. It is now cleaning out at a total depth of 2,546 feet, after a 180-quart shot from 2,485-95 and 2,503-40 feet. It showed up over a week ago from a pay encountered at 2,527 feet, and there is a good possibility of it making a well after the hole is cleaned out and test made.

Concho County Possibility

Concho County's possibility, Jones & Liner's No. 1 Jones, located in the NW cor. of the John Reh Survey No. 1,878 still has a good chance of making a well from a sand formation encountered at 1,775 feet. It is standing at 1,790 feet waiting to be tested. The hole is standing with 60 feet of oil in it. This is about the best showing that this county has ever had, and many are of the belief that it will open up a pool of high gravity sweet oil in this area.

Culberson County showed up with a puff of gas at 2,177 feet in Scott & Dittman's No. 1 Miller, which is located in the NE cor. of Section 1, Block 97, Public School Land Survey. The test is now drilling at 2,316 feet with no increase in gas, and without further showings.

World Oil Co.'s No. 1-C McDowell, which opened up the first pool in Glasscock County, Section 21, Block 34, Township 2s, T.&P. Survey, is making 15 per cent basic sediment and 3 per cent water. It is believed that the water is coming from behind casing or from open hole. Six and five-eights inch casing with a wall packer is to be run to 2,351 feet for the purpose of closing the open hole below 2,050 feet. The well has been averaging around 150 bbls. per day on pump, and the Humble Pipe Line Co. is taking the oil. Top of the pay of this discovery is 2,350 feet, total depth 2,385 feet, and gravity of the oil is 30. It was discovered the first week in May and came in with an initial production of 275 bbls. It is approximately 7 miles southwest of production in the extension of the Howard County Pool.

Atlantic Oil Producing Co. and the Delmar Oil Co. have completed their second well in the Shipley Pool, Ward County. It is their No. 2 Hazlett, the fifth and latest producer in this pool. All of the wells are in Section 17, Block 5, H.&T.C. Survey. Topping the pay at 2,471 feet, it flowed 80 bbls. in 12 hours while drilling to the total depth of 2,500 feet. Pay was passed out of at 2,483 feet, and the companies decided to shoot the test after production did not increase. It was shot with 90 quarts of nitro from 2,470 to 2,500 feet and started flowing by heads after the shot. The first 24 hours' gauge showed it flowing at the rate of 247 bbls.

Phillips Petroleum Co.'s No. 1 Stokes, located in the northeastern part of the S. Beall Survey, Midland County, has rather lost its interesting aspect since the 1,000 feet of fluid in the hole only held about a bailer of dark, heavy oil on top. Tools were recovered from the past total depth of 3,915 feet, where the hole started filling with fluid, and it is now drilling at 3,927 feet with about 1,500 feet of fluid in the hole.

Hendricks Extended

The Gulf Production Co. extended the Hendricks Pool, Winkler County, by a half mile during the week when the company's No. 1-B Daugherty was shut down at a total depth of 2,750 feet after topping the pay at 2,675 feet. The oil increased at 2,745 feet. The well was estimated at around 4,000 bbls., 35 per cent water. It is located in the NE cor. of Section 22, Block 26, Public School Lands.

The Grayson Pool, 3 miles south of the town of Best in Reagan County, which was brought in about a year ago by the discovery in the Skelly Oil Co.'s No. 1 Grayson, Block 8, registered a dry hole this week in the company's No. 4 University, which is located 2,310 feet from the south line and 990 feet from the east line of Section 33, above block. It was abandoned at a total depth of 3,094 feet. The California Co. has one producing well in this pool averaging about 10 bbls. daily and the Skelly has two wells averaging 96 bbls. daily. The Humble Pipe Line Co. is taking the oil. Prospects of this pool have never been too large, for dry holes have been drilled on all sides within a comparatively short distance, and expectancies for the pool have been held down somewhat by the averages made by the first three wells drilled.

West Texas picked up in production this week, a total of 3,888 bbls. over the previous week. This week's total rose to

(Continued on Page 158)

WILDCAT OPERATIONS IN WEST TEXAS

Week Ended June 17

Company, farm and location—	Remarks—
ANDREWS COUNTY	
Mid-Continent Oil & Gas Co.'s No. 1 Fisher, 1,320 ft. N and 200 ft. E of SW cor. Sec. 5, Blk. A-36	Top salt 1,720 ft.; running 8⅝-in. casing 3,355 ft.; drlg. 3,930 ft.
BORDEN COUNTY	
Moncrief et al's No. 1 Munger, C of SW Sec. 14, Blk. 31	Moving in material.
Texas & Wheeler's No. 1 Long, 1,320 ft. N and E of Sec. 27, Blk. 30, T.&P. Sur.	Location.
BREWSTER COUNTY	
Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor. Sec. 45, Blk. G-15, G.C.&S.F.	Shut down 1,900 ft.
Cowden & Bowser's No. 1-A Jackson & Harmon, Sec. 1, Blk. 331, T.C.R.R. Sur.	Set 8-in. 1,530 ft.; shut down 2,000 ft.
Forrest Oil Co.'s No. 1 Skinner, C SW SE Sec. 100, Blk. 2, G.C.&S.F. Sur.	Rig.
J. M. Hickey's No. 1 Jackson & Harmon, NE cor. Sec. 182, Blk. 9, G.H.&S.A. Sur.	Shut down 1,302 ft.
Johnson & Weekley's No. 1 Jackson & Harmon, C Sec. 104, Blk. 10, G.H.&S.A. Sur.	Drlg. 1,320 ft.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 mi. S of Alpine	Shut down 1,740 ft.
COKE COUNTY	
Lipan Oil Co.'s No. 1 E. C. Rawlings, Sec. 390, Blk. 1-A, H.&T.C. Sur., elev. 2,750 ft.	Total depth 2,841 ft.; cleaning out.

Promise of New Pool in Cooke County

Proving of New Pool Opener in Foard County Increases Activity There. Gray County Output Gains

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., June 17.—A new discovery in Cooke County, another increase in Gray County production, with approximately 100 new locations and wells being drilled in this county, and the proving of the new pool opener in Foard County were the high lights in the Panhandle and Wichita Falls districts during the week.

The American Refining Co. and Benson Brothers' No. 1 Havercamp, 150 feet from the north and west lines of the Havercamp 105-acre tract, 2 miles northeast of the town of Muenster, was estimated good for a 40-bbl. well when it encountered a pay sand at 745 feet and was shut down at 761 feet swabbing 38 gravity oil. This is a wildcat and promises the opening of a new pool in Cooke County. The nearest production to this discovery is on the Fain-McGaha lease, 3 miles northeast where there are four small producers.

Shell Petroleum Corp.'s No. 1 Tarver which opened a new pool in Foard County a week ago, at a total depth of 2,124 feet, after topping a pay at 2,110 feet, encountering gas sands at 1,945-55 feet and 2,104-18 feet, pumped a total of 137½ bbls. the last 24 hours. This discovery has caused a vast amount of interest in this sector and leasing has been rather brisk since the well encountered its first showing. The Shell Petroleum Corp. and Fain-McGaha Oil Co. have considerable holdings around the well, with the Gulf Production Co., Humble Oil & Refining Co., and the Central Oil Co. close in with several tracts. It was reported last week that the Humble Pipe Line Co. was laying a line to this well, but this was an error, as the Sinclair Pipe Line Co. is now laying a combination 3 and 4-inch line, 15½ miles long, from its pumping station in the Fluman Pool, Wilbarger County, to this well. Gravity of the oil is 37.5 corrected.

Good Wells in Carson

The Skelly Oil Co. brought in two fairly good wells in Carson County in its Nos. 13 and 14 Schafer, the former being completed at a total depth of 3,100 feet after topping the pay at 3,084 feet. This well was good for 540 bbls. The other well was completed at 3,622 feet, topping the pay at 3,050 feet, and coming in for 472 bbls. the first 24 hours.

No extraordinarily large wells were completed in Gray County although the Danciger Oil & Refining Co.'s No. 1 H. Beck was good for 2,618 bbls. the first 24 hours on gas lift at a total depth of 2,874 feet. Pay was topped at 2,840 feet. Gardner & Collins' No. 1 Lincoln-Saunders was completed for 2,050 bbls. of oil and 5,000,000 feet of gas at a total depth of 2,538 feet.

Hutchinson County had only one completion, good for 200 bbls. This well was the Holmes and others' No. 1 J. L. Moore completed at 3,040 feet. Pay was at 3,000 feet.

Archer County saw the completion of 18 wells, half of them being dry holes. The best was the Bridwell Oil Co. and others' No. 1 Logan and others completed for 503 bbls., at a total depth of 1,145 feet, from pay at 1,139 feet. This was by far the best well completed in this county during the week, most of the producers being small.

New Pool in Shackelford?

Western Shackelford County received promises of a new pool during the week when Oyster & Rife, independent operators of Abilene, Tex., brought in a wildcat discovery in their No. 1 W. Y. and R. A. Davis, in the northeast quarter of Section 15, Block 14, T.&P. Survey. Pay was encountered from 1,604-08 feet and the well shut down at 1,611 feet. It swabbed about 60 bbls. daily, 38 gravity oil, and the test is now being put on the pump. This test is 2 miles west of the Davis Ranch Pool and 1½ miles south of the Harvey Pool. The Humble Pipe Line Co. is reported to have laid a line to the well and ready to take the production. An offset location has been made, and the area will undoubtedly receive further testing right away.

The Hoffer Oil Corp. and The Texas Company have opened a new pool in the Central Texas area, in their No. 1 Gray, in the northeast quarter of Section 485, S. P. Railway Survey, Eastland County. Total depth of this test is 3,451 feet. The Lake sand was encountered from 3,446-51 feet, and the well flowed 110 bbls. of 38.7 gravity oil in 13 hours. Storage is now being built, and pipe will be run preparatory to completing the well.

Palo Pinto Well

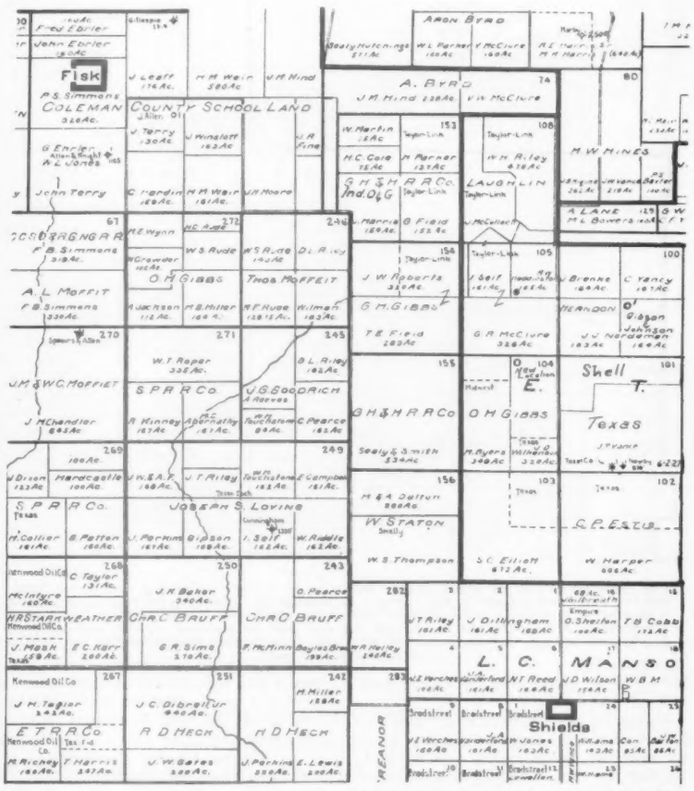
The Ashe Syndicate completed a nice well in its No. 2 Hart, Palo Pinto County, when it encountered a sand at 3,442 feet. The well was shut down at a total depth of 3,944 feet spraying an estimated 60 bbls. of oil and making 6,000,000 feet of gas. This test is in Section 29, Block 3, T.&P. Survey, same section as its No. 1 Hart which came in June 15 making 10,000,000 feet of gas from the Ranger sand at 3,943 feet, and extended the Ranger pay to the north and east.

Jack County is receiving a considerable amount of interest in several wells drilling over the county, especially in the Bryson Pool. Two wells in this pool were completed, neither being spectacular in size or performance.

Brown County did not scratch with a producer during the week, but saw the abandoning of four dry holes, but interest and activity around the new discovery of the Taylor-Link Oil Co.'s No. 1 Huddleston (Barker) in Section 105, E.T.R.R. Survey, Coleman County, is holding the spotlight in this area, and other tests about this new well will be watched closely to see in which direction the pool is to advance. The Taylor-Link well was completed at 683 feet for an initial production of 200 bbls. the first 24 hours on pump, gravity of the oil being 42.5 at 47 degrees.

Production Gain

Gray County production jumped 6,130 bbls. daily average during the week, while Hutchinson County dropped about 2,200 bbls. Carson gained by the completion of some wells, and the whole Panhandle registered a gain of 3,790 bbls. over the past week. The Wichita Falls district dropped 340 bbls. while the Ranger district picked up the small amount of 165 bbls., making the grand total of these districts 222,333 bbls., or a gain of 3,615 bbls. over the previous week. The new Foard County discovery well of the Shell Petroleum Corp. will probably build up the Wichita Falls district production during the following week, if connections are made and it is pumped steadily for the week.



Plat showing Taylor-Link Oil Co.'s No. 1 Huddleston (Barker), located 9 miles southwest of Santa Anna, Coleman County, Texas. This wildcat is the opener of a new high gravity pool for the county. The first 24 hours' pumping produced 200 bbls. of oil worth at least $1.80 per barrel.

ESTIMATED DAILY AVERAGE PRODUCTION

June 17
North Texas

Panhandle District—	
Carson County	7,370
Hutchinson County	25,945
Gray County	50,800
Moore County	1,355
Potter County	25
Wheeler County	910
Total this week	86,405
Total last week	82,615
Increase	3,790
Wichita Falls District—	
Archer County	17,759
Baylor County	84
Clay County	633
Cooke County	6,278
Foard County	50
Jack County	2,774
Haskell County	150
Montague County	6,712
Throckmorton County	705
Wilbarger County	26,438
Young County	6,959
Wichita County	26,234
Total this week	94,776
Total last week	95,116
Decrease	340
Ranger District—	
Brown County	7,704
Callahan County	4,510
Coleman County	3,843
Comanche County	1,218
Palo Pinto County	372
Ranger	5,370
Shackelford County	11,811
Stephens County	6,324
Total this week	41,152
Total last week	40,987
Increase	165
Grand total this week	222,333
Grand total last week	218,718
Increase	3,615

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending June 17
CARSON COUNTY

Company, well, farm, name, section and block—	Remarks—
Delmar Oil Co.'s No. 4 Nail, 330 ft. from N line, 330 ft. from W line of W½ SE, Sec. 198, I.&G.N., Blk. 3	Drlg. 1,884 ft.
Empire G. & F. Co.'s No. 16 Burnett, C NW cor. Sec. 104, Blk. 5, I.&G.N.R.R. Sur.	S.D. 2,170 ft.
Gulf Prod. Co.'s No. 1, 330 ft. S and W NE cor. NW. Sec. 111, Blk. 4, I.&G.N.R.R. Sur.	Drlg. 3,001 ft.
Empire G. & F. Co.'s No. 5 M. P. Co.'s "A," 330 ft. S and E of NW cor. SE SW, Sec. 91, Blk. 4, I.&G.N. Sur.	Drlg. 2,460 ft.
Empire G. & F. Co.'s No. 1 Deahl, 660 ft. from N line, 660 ft. from W line, Sec. 21, Blk. Y-2	Drlg. 386 ft.
Gulf Prod. Co.'s No. 1 Garner-B, 330 ft. N and W SE cor. SW, Sec. 106, Blk. 4, I.&G.N.R.R. Sur.	Location.
Gulf Prod. Co.'s No. 7 Noel, 330 ft. S and W NE cor. SW, Sec. 198, Blk. 3, I.&G.N. Sur.	Location.
Herragan Oil Co.'s No. 1 L. C. McConnell, 330 ft. N and W line W½ SW, Sec. 187, Blk. 3, I.&G.N. Sur.	Drlg. 605 ft.
Gulf Prod. Co.'s No. 6 Noel, 330 ft. S and 1,320 feet E of NW cor. SW, Sec. 198, Blk. 3, I.&G.N. Sur.	Oil 3,170-75 ft; 58,000,000 ft. gas; T.D. 3,248 ft; swbd. 250 bbls. in 18 hrs.

(Continued on Page 116)

WICHITA DISTRICT COMPLETIONS

Week ending June 15
Archer County

Cullum and others' No. 1 Parrish was dry and abandoned at 1,620 feet. Fain-

(Continued on Page 157)

"If *you want production, give us a Guiberson Swab and we will get it.*"

I. D. Smith, Driller, (left) and D. S. Neal, Tooldresser, (right) are shown here using a Guiberson Swab in the Carr City Field in the Seminole Area. Their statement above expresses their opinion of the merits of this excellent Guiberson product, whose flexible cup principle of construction has revolutionized the world's methods of swabbing. Ready proof of this statement is found in the fact that the Guiberson Swab is doing most of the world's swabbing to-day. Fully patented.

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GUIBERSON

BETTER BE SAFE THAN SORRY

OKLAHOMA FIELDS

(Continued from Page 50)

hour from the Wilcox sand at 5,918-6,016 feet.

J. S. Cosden, Inc., No. 1 Gardner, NE NW Section 31-19-4w, Logan County, which extended the field a half a mile southwest, is drilling at 5,680 feet. The well has been flowing 65 or 75 bbls. a day from the Viola lime. It had the top of the Viola at 5,580 feet and is the highest well in the field on that horizon. A later report showed the well flowing 600 bbls. a day at a total depth of 5,687 feet.

The Superior Oil Corp.'s No. 1 Story, SE cor. Section 25-19-5w, Logan County, a half mile west of the Cosden well, also an important wildcat, is drilling at 3,085 feet.

Several new locations have been announced in the Marshall Pool, Logan County. The Shell Petroleum Corp.'s No. 1 Story, SE SW Section 30-19-4w, is moving in material. Same company also has a location for No. 10 McCully, NE NW NE Section 30-19-4w, and for No. 6 Sebronek, SE SW NW Section 30-19-4w.

In addition to the above new work, L. H. Wentz is building rigs for No. 2 Williams, NW NE Section 31-19-4w, and No. 3 Williams, NE NW NE Section 31-19-4w, Logan County.

Fee Owner Takes a Chance

Several months ago Tom Slick Oil Co. and others drilled a well in the NW SE Section 31-10-5, Seminole County, on the west side of the Searight Pool. The well was known as No. 1 Haer, it had the Hunton lime at 4,445-58 feet and it filled up 3,500 feet with oil. While drilling in the Viola it made several flows. After drilling the Wilcox sand and getting a hole full of water it was plugged back to the Hunton, given a shot and it swabbed 70 bbls. a day. It exhausted itself and was abandoned. The land owner bought the casing in the well and for an interest in the well the crew did the plugging back. The fee owner has erected tankage and after cleaning out the well to a total depth of 4,150 feet it made a flow of 165 bbls. It will be given a production test and put on the pump.

Three completed wells have been added to the field at Asher during the past week. Tom Slick Oil Co.'s No. 1 Welden, SW NW Section 20-6-4, Pottawatomie County, had Viola lime at 3,678-3,733 feet, where it made 300 bbls. in eight hours. Same company's No. 2 Welden, SW NW NW Section 20-6-4, Pottawatomie County, had Viola lime at 3,785-95 feet and the well made 120 bbls. in the last 24 hours ending 7 a.m. June 17. Simms Oil Co.'s No. 2 Laster, NE cor. Section 19-6-4, Pottawatomie County, found the top of the Viola at 3,654 feet and was drilling at 3,720 feet with 3,000 feet of oil in the hole.

St. Louis Pipe Line Runs

The daily average pipe line runs from the St. Louis Field and the runs from the new field at Asher are as follows:

Company—	Bbls.
Consolidated	2,898
Cosden	699
Gulf	5,197
Independent	4,910
Magnolia	28,608
Oklahoma	1,900
Prairie	24,298
Shell	1,900
Sinclair	26,248
Texas	2,034
Tidal	3,610
Total	102,302

Pipe Line Runs in Seminole

The daily average pipe line runs from the Seminole area for the past week are as follows:

Company—	Bbls.
Barnsdall	2,553
Champlin	4,231
Continental	1,461
Consolidated	291
Cosden	13,382
Empire	9,071
Gulf	31,835
Independent	0
Magnolia	18,673
Oklahoma	40,268
Prairie	52,387
Prod. & Ref.	2,286
Pure	3,120
Shaffer	3,591
Shell	9,928
Sinclair	36,827
Texas	15,133
Tidal	18,618
White Oak	4,872
Total	268,527
Tank cars	7,491
Grand total	276,018

Production of St. Louis Pool

Production of St. Louis Pool by companies and leases for June 13 follows:

S.T.R.	Company farm—	Well No.	Prod.
16-7-4	Atlantic-Indep., Burke	1	555
30-7-5	Barnsdall, Stahl	3	1,155
25-7-4	Blackwell-Omer, Cherry	3	760
16-7-4	Darby Youngblood	1	382
25-7-4	Gypsy, Bruno	4	73
25-7-4	Gypsy, Collins	4	507
26-7-4	Gypsy, Dodson	4	105
17-7-4	Gypsy, Green	1	0
23-7-4	Gypsy, LeClair	4	2,333
26-7-4	Gypsy, Roseman	3	560
30-7-5	Gypsy, Stahl	8	1,248
	Total		4,826
14-7-4	Home Gas, Town Lot	1	295
17-7-4	Houston, Wyatt	1	1,022
30-7-5	Independent, Blandin	5	640
1-7-4	Independent, Borrow	2	1,318
19-7-5	Independent, Youts	8	9,645
	Total		11,603
16-7-4	Indep.-Westland, Rhodd	1	3,712
23-7-4	Inter-Ocean, McGee	6	250
2-7-4	Irwin-Martin, Kelley	2	2,500
14-7-4	Magnolia, Banta	3	325
18-7-5	Magnolia, Bradenburg	5	1,770
26-7-4	Magnolia, Cherry-A	5	880
26-7-4	Magnolia, Cherry-B	3	238
26-7-5	Magnolia, G. W. Fyke A.	1	576
20-7-5	Magnolia, G. W. Fyke B.	2	359
20-7-5	Magnolia, Tull Fyke B.	2	501
29-7-5	Magnolia, Tull Fyke D.	2	285
19-7-5	Magnolia, Hembree	4	162
17-7-4	Magnolia, Latimer	1	745
15-7-4	Magnolia, J. M. Robins	4	300
24-7-4	Magnolia, Mary Wilborn	2	303
24-7-4	Magnolia, S. A. Wilborn	5	840
20-7-5	Magnolia, Chas. Youts	5	564
19-7-5	Magnolia, C. A. Youts	4	444
20-7-5	Magnolia, H. E. Youts	7	5,124
17-7-4	Mag.-Price, Hughbanks	1	402
	Total		13,666
25-7-4	McCullough-Blackwell, Bruno	5	1,190
25-7-4	McCullough-Mid-Cont., Smith	6	720
25-7-4	Mid-Kansas, Getzleman	4	1,110
30-7-5	Mid-Kansas, Lunay	3	280
	Total		1,390
25-7-4	Phillips, Cherry	2	185
30-7-5	Phillips, Stahl	4	852
	Total		937
25-7-4	Prairie, Desmond	4	150
25-7-4	Prairie, Ellison	4	250
30-7-5	Prairie, Gammon	8	3,225
19-7-5	Prairie, Hembree	4	3,057
30-7-5	Prairie, Linn	4	785
29-7-5	Prairie, Wolfe	4	3,790
19-7-5	Prairie, Youts	4	255
18-7-5	Prairie et al, Davis	4	135
18-7-5	Prairie-Maud, Nesbit	2	380
17-7-5	Prairie-Shaffer, Rice	1	900
	Total		12,927
26-7-4	Pure, Dodson	2	157
26-7-4	Pure, Thomas	4	9,770
1-7-4	Pure, Tolon	1	209
	Total		10,136
23-7-4	Shaffer, Cherry	4	125
30-7-5	Shaffer, Tolon	4	550
	Total		675
24-7-4	Sinclair, Blandin	13	1,545
7-7-5	Sinclair, Brandenburg	3	1,245
26-7-4	Sinclair, Bruno	2	3,325
25-7-4	Sinclair, Gilbreath	2	810
29-7-5	Sinclair, Nadash	5	520
25-7-4	Sinclair, Nealy	5	350
25-7-4	Sinclair, Nealy-B	2	685
18-7-5	Sinclair, Nesbit	8	2,505
19-7-5	Sinclair, O'Kitchee	7	410
	Total		11,395
25-7-4	Texas, Cherry	4	1,375
24-7-4	Westheimer-Daube, Freid	5	750
	Small Pumpers	110	3,813
St. Louis wells and production		362	86,124

Asher Pool

19-6-4	Prairie-Slick, Laster	2	3,960
19-6-4	Simms, Laster	1	2,315
20-6-4	T. B. Slick, Bledsoe	1	305
19-6-4	Slick-Amerada, Walker	1	2,820
20-6-4	Slick, Walden	1	300
	Total	6	9,700

Carter County

Magnolia Petroleum Co.'s No. 3 E. Gill, NW cor. SE SE, Section 23-1s-3w, has been completed for 14 bbls. in sand at 2,425-27 feet, total depth 2,650 feet. Gypsy Oil Co.'s No. 2 Morris, CSL NW SW, Section 28-2s-3w, is dry and abandoned at 2,323 feet.

Caddo County

English Drilling Co.'s No. 1 Huron, C NW SE, Section 26-6-10w, is rigging up.

Creek County

W. S. O'Hair and others made location for No. 1-A Mathews, NE cor. SW NW, Section 27-18-11. G. F. Collins has a machine on the location for No. 2 Bailey, CNL SE SW, Section 12-17-11. Pioneer Oil Co. moved the rig in for No. 1 Williams, SE cor. SW, Section 26-14-9. The Prairie Oil & Gas Co.'s No. 5 Litchfield, NE cor. NW NE, Section 21-17-7, Drumright area, is drilling deeper at 2,723 feet.

Magnolia Petroleum Co.'s No. 21 Musselman, SE cor. SW SE, Section 8-18-7, has been completed for 20 bbls. in sand 2,588-2,654 feet. G. F. Collins and others' No. 2 Halsell, NE cor. SW SW, Section 12-17-11, made 20 bbls. from sand at 1,192-1,201 feet. The Prairie Oil & Gas Co.'s No. 2 Yahola, NW cor. SW, Section 16-14-8, has been abandoned at 3,864 feet in Wilcox sand.

Garvin County

Gilcrease-Douglas Oil Co.'s No. 1 Barnett, SE cor. NW NE, Section 36-3-3w, is dry and abandoned at 4,697 feet.

Grady County

Meridian Gas Co. made location for No. 1 Ridley, C S half SE, Section 25-4-8w.

Grant County

Argo Oil Co.'s No. 2 Howell, SE cor. Section 22-27-3w, Deer Creek Field, is cleaning out to drill deeper.

Jefferson County

Pearce & Brown's No. 1 School Land, SE cor. NE NW, Section 16-5s-8w, is a dry hole at 3,001 feet.

Kiowa County

Cummings and others' No. 2 Prough, SE cor. NE SE SW, Section 18-6-16w, is drilling at 190 feet. Alexander and others' No. 3 Fuqua, SE cor. SW SW NE, Section 18-6-16w, has been abandoned at 601 feet.

Logan County

Shell Petroleum Corp. made location for No. 6 Sebranek, SE cor. SW NE, Section 30-19-4w, Roxana Pool. Location was made for No. 1 Storey, SE cor. SW, Section 30-19-4w. No. 10 McCully, NE cor. NW SE, Section 30-19-4w, is also a location.

Pawnee County

Hay and others' No. 2 Copeland, NE cor. SW SW, Section 26-20-9, has been completed for 531 bbls. in sand at 2,048-54 feet.

Hughes County

Shell and others' No. 1 Tiger, SE cor. NE, Section 5-6-8, is dry and abandoned at 4,654 feet in Wilcox sand.

Pontotoc County

Boucher Oil & Gas Co. made location for No. 1 Hardin, SW cor. NW NW, Section 31-4-7. Belchie & Laskey's No. 1 Crabtree, C NW SE, Section 32-5-7, has been completed for 10,000,000 feet of gas in sand at 1,476-95 feet after plugging back from 2,200 feet.

Pottawatomie County

Phillips Petroleum Co. is building the rig for No. 2 Reed, SE cor. NW NW, Section 8-9-5. Barnsdall Oil Co. and Indian Territory Illuminating Oil Co. made location for No. 1 School Land, SE cor. SW SW, Section 16-8-5, Maud area. Independent Oil & Gas Co. and Westland Oil Co.'s No. 1 L. Booze, SW cor. NE SE, Section 9-7-4, Pearson area, is a cellar. Magnolia Petroleum Co.'s No. 1 P. Robbins, NE cor. SE SE, Section 15-7-4, St. Louis Pool, is rigging up to deepen from 3,720 feet. Darby Petroleum Co. has the rig on the ground for No. 3 Youngblood, NE cor. NW, Section 16-7-4.

Independent Oil & Gas Co. and Westland Oil Co. made location for No. 3 Rhodd, NE cor. NW NW, Section 16-7-4. The cellar is dug for No. 4 Rhodd, SE cor. NW NW, Section 16-7-4. Atlantic Oil Producing Co. and Independent Oil & Gas Co. has the rig on the ground for No. 2 Burke, NW cor. NE, Section 16-7-4. The Prairie Oil & Gas Co. and T. B. Slick's No. 4 Laster, SW cor. SE NE, Section 19-6-4, Asher Pool, is rigging up. Tools are being moved in at No. 5 Laster, SE cor. SW NE, Section 19-6-4. Tom Slick Oil Co. made location for No. 5 Bledsoe, SW cor. NW SW, Section 20-6-4.

Phillips Petroleum Co.'s No. 1 Reade, NE cor. NW NW, Section 8-9-5, Earlsboro Pool, swabbed 765 bbls. from Wilcox sand at 4,358-72 feet. Empire Oil & Refining Co. and Amerada Petroleum Corp.'s No. 2 Bullock, NW cor. NE NW, Section 8-9-5, has been completed for 890 bbls. in Wilcox sand 4,380-86 feet. The Prairie Oil & Gas Co. and T. B. Slick's No. 1 Rowe, NE cor. SW, Section 18-7-5, St. Louis Pool, is dry and abandoned at 4,267 feet.

Seminole County

Shaffer Oil & Refining Co. has the rig on the ground for No. 3 McKoy, SE cor. SW SW, Section 36-10-5, Earlsboro Pool. Carter Oil Co. moved the rig in for No. 1 Mayhue, SW cor. NE SW, Section 11-9-6. Marland Oil Co. and Shaffer Oil & Refining Co. has the rig on the ground for No. 3 Harris, NW cor. SW, Section 4-7-7. Producers & Refiners Corp. is building the rig for No. 2 Thomas, SE cor. SE NW, Section 5-7-7. Sunray Oil Corp. and Cal Cul Oil Co. made location for No. 3 Joanna, NW cor. SW, Section 24-5-7.

Sinclair Oil & Gas Co. and Marland Oil Co.'s No. 2 J. Warrior, SW cor. NW NW, Section 17-9-7, East Seminole Pool, drilled to 2,750 feet and plugged back to 2,642 feet and completed for 2,000,000 feet of gas. The Prairie Oil & Gas Co.'s No. 1 Stubbs, NW cor. NE NE, Section 18-9-7, had water in Wilcox sand at 4,300-06 feet and plugged back to Hunton lime at 4,200 feet where it is making 20 bbls. Empire Oil & Refining Co.'s No. 10 Cluck, NW cor. NE SE, Section 11-8-5, Carr City Pool, made 576 bbls. in Wilcox sand at 4,227-44 feet.

Gypsy Oil Co.'s No. 1 N. Barkus, SE cor. SW, Section 6-8-6, Mission Pool, was deepened 2 feet from 4,215 feet to 4,217 feet and made 1,400 bbls. then after a 10-quart shot increased to 2,115 bbls. No. 10 N. Barkus, SW cor. NW SW, Section 6-8-6, had Wilcox sand at 4,240-47 feet and is pumping 260 bbls. McCulloch Oil Co.'s No. 1 McGilbray, SW cor. NE, Section 4-8-8, is dry and abandoned at 4,315 feet in Wilcox sand. Mid-Continent Petroleum Corp.'s No. 5 Smith, NW cor. SW NE, Section 5-7-7, East Little River Pool, flowed 4,730 bbls. from Viola lime at 4,222-32 feet.

Producers & Refiners Corp.'s No. 1 Thomas, NE cor. SE NW, Section 5-7-7, swabbed 470 bbls. from Wilcox sand at 4,363-69 feet. Independent Oil & Gas Co.'s No. 3 Carpenter, NW cor. NE NE, Section 27-7-6, flowed 967 bbls. from Gilcrease sand 3,115-29 feet. Sinclair Oil & Gas Co.'s No. 1 Jefferson, SE cor. NE SE, Section 23-5-7, Sasakwa area, had Wilcox sand at 4,175-83 feet and flowed 850 bbls. The Texas Company's No. 9 Lucy, SE cor. NE NW NE, Section 19-5-8, Allen Pool, has been completed for 337 bbls. in Cromwell sand at 2,525-2,625 feet.

Stephens County

Carter Oil Co. is erecting the rig for No. 6 Carter Kerans, SW cor. NE SE, Section 21-3-5w. Pace and others' No. 1 Marks, SW cor. NE SE, Section 13-2s-8w, is drilling at 828 feet.

American Pipe Line Co.'s No. 6 Dexter, SE cor. NW, Section 34-1s-8w, is flowing and swabbing 75 bbls. from sand at 1,845-58 feet. Wirt Franklin Petroleum Corp.'s No. 2 Drake "B," SW cor. NW NE, Section 12-1s-4w, was completed for 60 bbls. in sands 2,794-3,187 feet. Ven Mex Oil Co. and Mid-Continent Petroleum Corp.'s No. 2 Medley, NE cor. NW NW NE, Section 2-2s-8w, is pumping 80 bbls. from sand at 2,212-19 feet. Pace and others' No. 3 Bristowe "A," NW cor. SW, Section 18-2s-7w, made a 50-bbl. well in sand at 1,418-26 feet. No. 4 McMasters, NE cor. SE NW NE, Section 13-2s-8w, has been completed for 70 bbls. in sand at 1,458-63 feet.

Noble County

Indian Territory Illuminating Oil Co. made location for No. 1 McCormick, NE cor. SE, Section 33-21-1w. Mid-Co. Petroleum Co.'s No. 15 Case, NE cor. SW NW, Section 29-24-1w, is drilling at 600 feet with a show of gas.

Osage County

Peters Petroleum Co. and Producers & Refiners Corp. made location for No. 1, SE cor. Section 19-26-7. White Eagle Oil & Refining Co. made location for No. 1, NW cor. NE SE, Section 23-26-7. The Texas Company has the cellar dug for No. 7, NE cor. SW SE, Section 30-25-8. Kay County Gas Co. has the rig on the ground for No. 7-B, NW cor.

SW NE, Section 22-24-7. Stoner Brothers and others moved a machine to the location for No. 4, CSL NW, Section 31-24-9. Continental Oil & Refining Co. made location for No. 4, SW cor. NE SE, Section 5-23-9. Braden & Moore have a machine on the location for No. 16, SE cor. SW NE, Section 12-21-8. Gray Oil Co. staked location for No. 9, CWL E half W half NE, Section 28-20-11.

Harland Oil Co.'s No. 83, NE cor. SE SW, Section 21-25-11, made 35 bbls. in sand at 1,695-1,735 feet. Phillips Petroleum Co.'s No. 2, SW cor. NE NW NW, Section 28-25-12, was completed for 12 bbls. in Bartlesville sand at 1,600-99 feet. F. R. Billingslea's No. 2, CEL NW, Section 6-23-9, was completed for 10 bbls. in Bartlesville sand at 2,125-61 feet. Braden & Moore's No. 15, NE cor. SW SW NE, Section 12-21-8, made a 15-bbl. well in sand at 602-08 feet.

Okfuskee County

Independent Oil & Gas Co.'s No. 2 Jacobs, NW cor. SW NE, Section 22-12-11, has been abandoned at 2,902 feet. The Prairie Oil & Gas Co.'s No. 1 Palmer, NW cor. NE, Section 2-11-9, is dry and abandoned at 4,035 feet in Wilcox sand. Producers & Refiners Corp.'s No. 3 Monarye, NW cor. SE SE, Section 29-12-10, came in for 20 bbls. an hour in sand at 3,115-50 feet.

Okmulgee County

L. C. Wheeler and others made location for No. 2 Fish, NE cor. Section 6-15-12. Marquette Oil Co. and others' No. 6 Williams, NW cor. NE NE, Section 22-13-12, is cleaning out to deepen from 2,101 feet.

L. C. Wheeler and others' No. 1 Finerty, SE cor. Section 31-16-12, has been completed for 14,000,000 feet of gas in sand at 2,185-95 feet. Rounsaville Oil Co.'s No. 3 Tunley, CEL NW SE, Section 30-12-12, made a 25-bbl. well in sand at 1,884-1,939 feet.

Payne County

Twin State Oil Co. moved the rig in for No. 1 Penny, SE cor. SW SE, Section 25-19-4. Deep Rock Oil & Gas Co.'s No. 2 A. Cole, SE cor. NE, Section 10-18-4, is rigging up. The Texas Company's No. 1 Cullison, NE cor. NW, Section 5-17-5, has been completed for 50 bbls. in sand at 3,600-16 feet.

Tulsa County

Brooks Drilling Co. made location for No. 4 Hawkins, NW cor. SE NW SW, Section 29-19-12.

Woods County

Peerless Oil Producing Co. and others' No. 1 Cromwell, C SW SE, Section 14-28-16w, is moving in material.

Production of pools in the Seminole area by companies and leases for June 13 follows:

Little River Pool

Company, farm—	Location	Wells	Prod.
Amerada:			
Nitey	2-7-6	3	150
Amerada-Wilcox:			
Fore	35-8-6	2	700
Barnsdall:			
Cotcha	23-7-6	2	395
Hotulke	22-7-6	3	1,239
Walker	4-7-6	1	28
Blackwell:			
Baker	11-7-6	4	1,125
Nitey	35-8-6	5	200
Talley	14-7-6	4	750
Bryan & Emery:			
Walker	4-7-6	1	13
Carter:			
Cotcha, M.	23-7-6	3	115
Cudjo, L.	23-7-6	2	100
Fish	36-8-6	4	650
Harjo, C.	11-7-6	3	2,700
Harjo, M.	13-7-6	4	760
Jackson	11-7-6	4	630
Larney, B.	24-7-6	1	445
Larney, J	24-7-6	4	2,077
Lena	10-7-6	1	655
Moore	11-7-6	1	175
Tewee	14-7-6	6	935
Thomas	11-7-6	1	355
Wilson	12-7-6	1	260
Champlin:			
Tewee	14-7-6	2	965
Continental:			
Cosar	36-8-6	7	1,169
Cosar, M.	25-8-6	1	49
Continental and Fisher:			
Milsey	11-7-6	2	473
Empire:			
Charty	24-7-6	1	60
Coker	13-7-6	3	695
Cotcha	27-7-6	1	58
Sandlin	3-7-6	1	12
Gypsy:			
Brown, C.	3-8-6	2	335
Brown, M.	33-8-6	1	930
Campbell	33-7-6	2	12
Conard	22-7-6	2	215
Cosar, W.	36-8-6	2	220
Cotcha	23-7-6	10	4,803
Denmark	11-7-6	4	1,268
Hulhoke	14-7-6	16	1,128
Mungee	1-7-6	1	2
Payne	5-7-7	1	0
Pottie	35-8-6	4	893
Renton	11-7-6	3	193
Independent:			
Carpenter	27-7-6	1	1,220
Davis, R.	13-7-6	4	1,330
Tewee	14-7-6	6	1,262
Williams	15-7-6	1	435
Independent & Highway:			
Harris	23-7-6	8	1,300
Independent & White Eagle:			
Davis	2-7-6	4	465
I. T. I. O.:			
Campbell	1-7-6	1	112
Dugan	35-8-6	3	447
House, M. A.	1-7-6	1	17
House, W. E.	1-7-6	1	11
House, "B"	2-7-6	4	711
Hull	26-8-6	3	75
Jackson	1-7-6	3	602
McCulla	1-7-6	3	732
Nitey	2-7-6	6	107
Phoebe "A"	36-8-6	2	38
Phoebe "B"	36-8-6	3	72
Reed	1-7-6	1	2
Soketheche	1-7-6	3	280
Magnolia:			
Cruse	2-7-6	4	104
Denby	11-7-6	4	240
Harjo, A.	14-7-6	2	80
Harjo, B.	14-7-6	2	168
Pottie	35-8-6	4	88
Reed, E.	31-8-7	1	28
Reed, I.	22-7-6	3	512
Marland & Shaeffer:			
Harrison	4-7-7	1	305
McCulloch & Sands:			
Harrison	4-7-6	1	0
Mid-Continent:			
Bruner	11-7-6	4	100
Eleck	23-7-6	1	25
Smith	5-7-7	5	10,120
Wadsworth	36-8-6	7	130
W. B. Pine:			
Hoyecha	26-8-6	7	1,390
Pine-Phillips:			
Pottie	35-8-6	1	178
Prairie:			
Chilcoat	25-8-6	3	400
Dungan	35-8-6	1	785
Gibson	14-7-6	5	1,370
Harris	14-7-6	4	550
House	2-7-6	4	165
Johnson	24-7-6	1	1,210
Lustey	5-7-7	2	30
Moppin	24-7-6	2	280
Reed	13-7-6	2	880
Talley	14-7-6	4	605
Thomas	5-7-7	1	215
Williams	15-7-6	2	462
Wood	26-7-6	1	420
Cudjo	26-7-6	4	1,035
Prairie & Amerada:			
Sunny	14-7-6	6	1,032
Pure:			
Brinson	24-7-6	4	1,060
Cotcha	14-7-6	10	2,311
Harjo	11-7-6	4	1,039
Hollins	11-7-6	1	87

Carr City Pool

Company, farm—	Location	Wells	Prod.
Reiter-Foster:			
Bunyard	14-7-6	4	625
Jefferson	31-7-6	1	12
Shaeffer:			
Narcombe	36-8-6	2	125
Shell:			
Caesar	11-7-6	1	0
Glass	26-7-6	1	10
Hotulke	23-7-6	4	921
Johnson	13-7-6	4	1,287
Sinclair:			
Blanton	11-7-6	1	340
Cosar	30-8-6	3	1,050
Haney	12-7-6	1	85
Tewee	14-7-6	2	1,330
Sinclair & Kingwood:			
Pompey	24-7-6	1	30
Skelly:			
Carl	14-7-6	2	1,546
Snowden-McSweeney:			
Tiger	13-7-6	2	485
Superior:			
Potulka	31-8-6	1	3
Soketheche	1-7-6	1	0
Texas:			
Brooks	25-8-6	1	15
Coker	1-7-6	3	12
Janey	11-7-6	6	1,340
Texas & Independent:			
Hutulke	23-7-6	4	700
Hutulke	22-7-6	2	885
Tidal:			
House	1-7-6	2	430
Johnson	1-7-6	1	4
Twin State:			
Lowe	25-8-6	1	80
Total		338	76,380

Company, farm—	Location	Wells	Prod.
Barnsdall:			
Coker	11-8-5	8	3,124
Fife	14-8-5	2	174
Carter:			
Coker	2-8-5	1	1,915
Empire:			
Cluck	11-8-5	10	5,179
Gypsy:			
Coker	10-8-5	1	56
Fife	14-8-5	1	17
I. T. I. O.:			
Simpson	10-8-5	1	5
Tully	10-8-5	1	0
Magnolia:			
Fee	11-8-5	2	400
Killing	14-8-5	1	6
Prairie:			
Billington	11-8-5	9	2,115
Mitchell	15-8-5	1	140
Sinclair:			
Bean	11-8-5	3	463
Harjo	11-8-5	3	960
Total		44	14,554

Maud Pool

Company, farm—	Location	Wells	Prod.
Amerada:			
Ballard	1-8-4	1	70
Fehlig	7-8-5	1	110
Gossland	8-8-5	3	250
Gravel	1-8-4	1	15
Hallum	1-8-4	4	2,120
Amerada & Barnsdall:			
Wallace	17-8-5	2	190
Amerada & Hull:			
Green	20-8-5	1	185
Amerada & Marland:			
Darby:			
Ketcham	19-8-5	1	8
Empire:			
Smith	8-8-5	1	1,064
Gypsy:			
Bourassa	7-8-5	4	90
Miller	18-8-5	8	697
Independent:			
Harding	18-8-5	5	220
I. T. I. O.:			
State	16-8-5	1	132
Laurel O. & G.:			
Billington	18-8-5	3	180
Magnolia:			
Billington	8-8-5	4	80
Green	20-8-5	2	299
Marland & Shell:			
Everett	18-8-5	2	107
Mid-Continent:			
Shelton	18-8-5	3	40
Phillips:			
Hudson	19-8-5	4	195
Wallace	17-8-5	2	135
Pine:			
Lingfelt	18-8-5	2	32
Smith	8-8-5	1	498
Prairie:			
Campbell	18-8-5	8	165
Prairie & White Eagle:			
Villines	20-8-5	1	25
Pure:			
Lindly	18-8-5	8	331
Urbansky	19-8-5	2	102
Wiley	8-8-5	4	1,227
Sinclair:			
Bellars	19-8-5	10	710
Calvin	7-8-5	3	125
Lewis	6-8-5	2	110
Skelly & Lenox:			
Green	20-8-5	1	170
Skelly & Margay:			
Lingefelt	18-8-5	4	230
Texas:			
Calvin	7-8-5	8	360
Tidal:			
Dunn	12-8-4	1	50
Everett	18-8-5	2	115
Smith	8-8-5	1	155
Twin State:			
Calvin	7-8-5	2	190
Wilcox:			
Smith	8-8-5	3	909
Total		119	11,694

Mission Pool

Company, farm—	Location	Wells	Prod.
Amerada:			
Rice	5-8-6	2	1,135
Fuswa	18-8-6	4	983
Melisse	9-8-6	1	805
Micco	8-8-6	2	80
Darby:			
Judy	1-8-5	1	90
Gypsy:			
Baby	6-8-6	1	15
Barkus, N.	6-8-6	10	5,235
Barkus, S.	7-8-6	1	87
Dosar	7-8-6	5	1,265
Hardy	7-8-6	7	985
Harjoche	7-8-6	4	125
Micco, L.	8-8-6	2	60
Micco, S.	8-8-6	1	70
Mission	5 and 6-8-6	7	2,612
Mosar	1-8-5	4	1,177
Independent:			
Lawson	1-8-5	5	1,410
Independent & Kistler:			
Payne	7-8-6	4	2,275
Marland:			
Maines	7-8-6	4	824
McMahon et al:			
Harjo	7-8-6	2	1,240
Mid-Cont.:			
Ripley	13-8-5	1	190
Mid-Kansas:			
Moore	7-8-6	1	10
Minnehoma:			
Neal	7-8-6	4	773
Pine:			
Harjo	6-8-6	2	1,030
Micco	8-8-6	1	25
Prairie:			
Crain	7-8-6	1	212
Melton	6-8-6	3	1,595
Micco	5-8-6	1	10
Townsend	6-8-6	1	195
Nellie	12-8-6	1	315
Prairie & Gypsy:			
Owens	18-8-6	2	400
Shaffer:			
Weaver	12-8-5	1	1,307
Shell & Marland:			
Herndon	7-8-6	3	539
Shell & Papoose:			
Maines	7-8-6	8	1,851
Sinclair:			
Hardy	7-8-6	4	1,391
Sinclair & Lenox:			
Judy	1-8-5	1	85
Tidal:			
Nelly	12-8-5	5	1,935
Twin State:			
Hayes	8-8-6	2	1,175
Judy	6-8-6	2	2,215
Ripley	12-8-5	2	645
Total		116	36,373

Bowlegs Pool

Company, farm—	Location	Wells	Prod.
Amerada:			
Roscoe	15-8-6	7	850
Atlantic:			
Baker	10-8-6	4	260
Fleet	23-8-6	3	165
Grayson	13-8-6	4	470
Jones, A.	16-8-6	2	25
Jones, C.	9-8-6	1	76
Barnsdall:			
McNac	28-8-6	1	20
Murrow	11-8-6	4	154
Carter Oil:			
Bowlegs	15-8-6	4	457
Burden	23-8-6	2	245

(Continued on Next Page)

RECAPITULATION SHEET JUNE 13, 1929

Company	Little River	Carr	Maud	Mission	Bowlegs	Earlsboro	Seminole	East Seminole	Searight	Total
Amerada	850	....	2,940	1,135	850	1,302	840	....	336	8,253
Atlantic	....	....	....	....	996	105	439	....	....	1,540
Barnsdall	1,662	3,298	....	....	174	6,585	1,298	20	33	13,070
Blackwell	2,055	....	....	....	....	....	....	....	....	2,055
Bryan-Emery & Carter	13	....	....	....	....	....	....	....	....	13
Burke-Greis	....	....	....	....	....	2,325	....	....	....	2,325
Carter	9,857	1,915	....	1,870	3,544	3,280	6,829	....	4,664	31,959
Champlin	965	....	....	....	....	....	....	....	....	965
Continental	1,861	....	....	....	....	719	....	1,590	....	4,170
Cosden & Co.	....	....	....	....	....	1,429	....	....	....	1,429
Darby	....	....	8	90	....	....	....	....	....	98
Dixie	....	....	....	....	40	....	....	....	....	40
Empire	825	5,179	1,064	....	381	1,617	357	....	....	9,423
Gypsy	9,999	73	787	11,631	2,816	8,600	2,419	....	1,312	37,637
Independent	6,012	....	220	3,685	....	1,874	1,837	....	....	13,633
I. T. I. O.	3,206	5	135	....	6,878	....	2,427	....	....	12,651
King-Shell	....	....	....	....	....	....	410	....	....	410
Laurel	....	....	180	....	....	....	....	....	....	180
McCullough	....	....	....	....	115	....	....	....	....	115
Magnolia	1,220	406	379	....	1,988	4,231	184	20	960	9,388
Marland-Shaffer	305	....	....	....	....	....	....	....	....	305
Marland-Sinclair	....	....	....	....	....	....	....	148	....	148
Marland-Shell	....	....	107	....	....	....	....	....	....	107
Marland	....	....	....	824	....	....	....	150	....	974
McMahon	....	....	....	1,240	....	....	....	....	....	1,240
Mid-Cont.	10,375	....	40	190	766	1,402	650	....	1,720	15,143
Mid-Kansas	....	....	....	10	....	35	....	....	....	45
Minnehoma	....	....	....	773	15	....	....	....	....	788
Pine	1,390	....	530	1,055	....	....	....	....	18	2,993
Pine-Phillips	178	....	....	....	....	....	....	....	....	178
Phillips	....	....	330	....	....	720	60	....	....	1,110
Prairie	8,407	2,255	190	2,412	4,025	6,793	5,107	....	103	29,312
Prairie-Slick	1,060	....	....	315	....	....	....	....	....	1,375
Pure	4,825	....	1,660	....	4,588	....	5,194	....	841	17,108
Reiter-Foster	637	....	....	....	....	....	....	....	....	637
Shaffer	125	....	....	1,307	390	217	....	....	....	2,039
Shell	2,218	....	....	....	24	1,769	249	....	173	4,433
Shell-Marland	....	....	....	539	....	....	....	....	....	539
Shell-Papoose	....	....	....	1,851	....	....	....	....	....	1,851
Sinclair	2,835	1,423	945	1,476	4,654	3,310	2,269	....	1,225	20,704
Skelly	1,546	....	170	....	....	2,759	....	....	....	4,475
Skelly-Atlantic	....	....	....	....	....	2,071	....	....	....	2,071
Skelly-Margay	....	....	230	....	....	....	....	....	....	230
Snowden-McSweeney	485	....	....	....	....	....	....	....	....	485
Superior	3	....	....	....	....	2,235	157	....	....	2,395
Texas	1,367	....	360	....	665	1,745	270	....	20	4,427
Texas-Indep.	1,585	....	....	....	....	....	....	....	....	1,585
Tidal	434	....	320	1,935	1,270	3,435	1,456	....	....	8,850
Turman	....	....	....	....	....	....	1,591	....	....	1,591
Twin State	80	....	190	4,035	....	110	....	....	120	4,535
Wilcox	....	....	909	....	....	....	....	....	188	1,097
Total prod.	76,380	14,554	11,694	36,373	34,179	58,673	34,043	4,515	11,718	282,124
Total wells	338	44	119	115	363	300	274	12	73	1,578

Company, farm—	Location	Wells	Prod.
Harjoche	14-8-6	6	555
Hilly	23-8-6	3	170
Jones	11-8-6	4	480
Walker	15-8-6	4	380
Wise	23-8-6	11	1,257
Dixie:			
Culley	11-8-6	1	40
Empire:			
Lacy	14-8-6	6	250
Wise	23-8-6	2	131
Gypsy:			
Bowlegs	22-8-6	1	0
Bradley	9-8-6	1	0
Cumsey	10-8-6	4	582
Grayson	13-8-6	4	472
Harjoche	10-8-6	3	300
Jones	11-8-6	1	0
Walker	15-8-6	7	1,312
Wise	23-8-6	2	150
I. T. I. O.:			
Barnett	24-8-6	2	138
Barnett "B"	23-8-6	1	41
Billington	22-8-6	4	269
Bowlegs	22-8-6	9	1,199
Davis	13-8-6	4	156
Fay	13-8-6	9	1,185
Goforth	15-8-6	12	1,020
Livingston	15-8-6	10	1,318
Lizzie	13-8-6	3	387
Walker	15-8-6	8	673
Williams	12-8-6	1	183
Wilmott	15-8-6	4	193
Work	24-8-6	1	51
Youngblood	24-8-6	2	64
Magnolia:			
Davis	13-8-6	3	399
Davis, M.	13-8-6	1	98
Hammond	19-8-6	8	595
Rhodes	12-8-6	5	472
Van Buskirk	9-8-6	4	424
McCulloch:			
Bowlegs	22-8-6	1	115
Mid-Continent:			
Baker	10-8-6	4	181
Smith	12-8-6	6	585
Minnehoma:			
Bowlegs	15-8-6	3	15
Prairie:			
Gahagan	23-8-6	3	250
Harber	10-8-6	8	1,480
Jones	3-8-6	1	25
Jones	11-8-6	3	265
Templeton	12-8-6	5	1,860
Whitney	23-8-6	4	145
Pure Oil:			
Reed	14-8-6	14	2,272
Strother "D" ..11 and	14-8-6	4	347
Strother "F"	10-8-6	7	1,969
Shaffer:			
Lacey	14-8-6	3	390
Shell:			
Taylor	16-8-6	5	24
Sinclair:			
Cumsey	10-8-6	4	900
Ellen	11-8-6	5	732
Harjo	14-8-6	3	855
Jones	9-8-6	7	300
Taylor	10-8-6	4	820
Taylor, W.	10-8-6	3	450
Walker	22-8-6	4	597
Texas:			
Reed	14-8-6	11	665
Tidal:			
Grayson	13-8-6	4	420
Harjoche	10-8-6	6	850
Total		303	34,179

Earlsboro Pool

Amerada:			
Anderson	15-9-5	2	271
Cowden	4-9-5	7	950
Rogers	3-9-5	2	81
Atlantic & Sinclair:			
Foreman	18-9-5	1	105
Barnsdall:			
Brown	10-9-5	3	977
Bruner, F.	2-9-5	2	187
Bruner, N.	10-9-5	1	274
Cudjo	14-9-5	1	23
Davis, D.	11-9-5	3	169
Davis, J.	11-9-5	4	1,373
Davis, M.	11-9-5	2	37
Gibson	9-9-5	7	903
Hern	15-9-5	1	0
Ingram	1-9-5	6	331
Pack, S.	10-9-5	4	87
Peter	10-9-5	3	48
Sango	1-9-5	2	1,485
Sebalka	15-9-5	1	170
Sullivan, H.	11-9-5	1	4
Sull-Harjo	10-9-5	2	22
Wasutke	12-9-5	3	495
Burke-Greis:			
Wisner	6-9-6	2	360
Burke-Greis and & Bank:			
Mays	1-9-5	2	1,965
Carter:			
Davis	13-9-5	3	235
James	6-9-6	3	1,750
Carter et al:			
Gilliam	13-9-5	2	1,295
Continental:			
Kays	2-9-5	2	44
Spencer	12-9-5	4	675
Cosden, J. S., Inc.:			
Anderson	13-9-5	1	1,429
Empire:			
Barker	12-9-5	1	30
Edmondson	3-9-5	2	60
Empire & Marland:			
Anderson	13-9-5	1	377
Empire & Amerada:			
Bullock	8-9-5	2	1,150
Gypsy:			
Bruner	10-9-5	4	1,775
Carter, B.	11-9-5	7	2,080
Earl	16-9-5	1	17
Hunick	5-9-5	2	1,767
Lottie	31-10-6	1	0
Noble	12-9-5	4	917
Peter	10-9-5	1	115
Sango	1-9-5	13	1,642
State	16-9-5	3	287
Independent:			
Bruner	10-9-5	3	177
Sullivan	10-9-5	1	12
Knapp	8-9-5	2	1,495
Indep.-Margay:			
Gains	11-9-5	3	195
Magnolia:			
Anderson	18-9-6	1	145
Bryant	9-9-5	6	39
Cowden	4-9-5	2	22
Dixon	12-9-5	1	16
Edmondson	3-9-5	1	3
Germany	30-9-5	1	18
Gilliam	13-9-5	2	2,158
Holmsley	11-9-5	6	6
Hyde	13-9-5	2	323
Ingram	10-9-5	1	15
Lena	10-9-5	3	42
Moore	24-9-5	1	985
Seay	12-9-5	3	137
Simpson	10-9-5	4	228
Sparks	11-9-5	6	88
Sullivan	12-9-5	3	6
Mid-Continent:			
McCumber	9-9-5	4	47
Rogers	5-9-5	4	1,355
Mid-Kansas:			
Anderson	14-9-5	1	35
Phillips:			
Dunaway	14-9-5	1	20
Reade	8-9-5	1	700
Prairie:			
Baker	24-9-5	4	1,240
Davis	13-9-5	3	418
Graham, C.	3-9-5	2	0
Graham, O.	10-9-5	4	820
James	6-9-6	2	0
Raitman	18-9-6	1	975
Stidham	11-9-5	9	765
Prairie & Skelly:			
Campbell	6-9-6	6	2,555
Prairie & Whitney:			
Harjo	24-9-5	1	20
Shaffer:			
Clark	1-9-5	2	217
Shell:			
Bayless	17-9-5	1	10
Hearn	13-9-5	1	79
Spencer	12-9-5	2	1,680
Sinclair:			
Alexander	36-10-5	1	960
Foreman	18-9-5	1	15
Hollins	12-9-5	1	20
Miller	24-9-5	1	865
Sango	2-9-5	4	1,450
Skelly:			
Mays	1-9-5	4	919
Shepard	6-9-6	4	1,670
Spencer	12-915	1	170
Skelly & Atlantic:			
Cherry	6-9-6	4	563
Lottie	6-9-6	4	1,508
Superior:			
Ingram	1-9-5	2	230
Walker	2-9-5	2	1,005
Texas:			
Anderson	2-9-5	8	130
Brown	10-9-5	8	115
James	6-9-6	2	95
Rogers	9-9-5	5	1,335
Wilmott	10-9-5	6	70
Tidal:			
Walker	35-10-5	2	1,535
Watkins	9-9-5	7	1,900
Twin State:			
Barker	12-9-5	3	40
Hern	2-9-5	2	70
Total		300	58,673

Seminole Pool

Amerada:			
Fixico	23-9-6	2	97
Killingsworth	23-9-6	4	440
Rentie	23-9-6	3	303
Atlantic:			
Cudjo, N.	35-9-6	3	439
Barnsdall:			
Carter	24-9-6	6	219
Henry	14-9-6	2	489
Jones	34-9-6	4	590
Carter Oil:			
B. Carter	24-9-6	2	50
F. Carter	23-9-6	3	127
Creamer	34-9-6	1	10
Cudjo, R.	35-9-6	4	125
Cudjo, W.	34-9-6	1	105
Gilliland	27-9-6	1	115
Grisso	23-9-6	4	190
Grisso, M.	15-9-6	1	235
Killings, G. F.	14-9-6	4	30
Killings, M. E.	23-9-6	12	4,300
Knapp	13-9-6	1	32
Lukes	27-9-6	5	795
Pounder	34-9-6	2	120
Simpson	35-9-6	2	155
Strothers	34-9-6	4	420
Vierson	23-9-6	1	20
Empire:			
Gross	25-9-6	2	45
Wilson	34-9-6	2	312
Gypsy:			
Butler	35-9-6	4	562
Carter	24-9-6	8	709
Cudjo	34-9-6	4	342
Fixico	26-9-6	7	75
Harjo	25-9-6	3	352
Wolfe	26-9-6	5	380
Independent:			
Fixico, P.	23-9-6	3	340
Harjo	25-9-6	2	40
Butler	35-9-6	3	960
Fixico, T.	26-9-6	5	219
Jones	26-9-6	4	337
I. T. I. O.:			
Allen	25-9-6	2	37
Bowlegs	26-9-6	12	2,034
Goodin	23-9-6	4	201
Harjo	23-9-6	3	58
James	24-9-6	2	97
Reed	24-9-6	1	0
Kingwood:			
Johnson	22-3-6	3	410
Magnolia:			
Boren	2-8-6	1	4
Franks	25-3-6	3	180
Mid-Continent:			
Rentie	14-9-6	9	480
Tayeche	24-8-6	7	170
Phillips:			
Strothers	27-9-6	2	60
Prairie:			
Cudjo	35-9-6	3	665
Franks	35-9-6	6	930
Giblet	35-9-6	3	1,345
Gross	25-9-6	5	40
Mason	36-9-6	1	60
Spencer	13-9-6	1	6
Strothers	27-3-6	8	2,040
Tiger	1-8-6	1	21
Pure Oil:			
Strothers	26-9-6	17	4,164
Strothers, B.	36-9-6	4	628
Strothers, C.	34-9-6	1	402
Shell:			
Harber	22-9-6	1	214
Lasley	22-9-6	2	35
Sinclair:			
Carter	13-9-6	2	22
Cudjo "A"	35-9-6	6	670
Cudjo "B"	35-9-6	4	627
Dicey	22-9-6	2	505
Fixico	23-9-6	4	445
Superior:			
Cudjo	35-9-6	4	156
Noble	15-9-6	1	1
Texas:			
Mayhue	14-9-6	1	195
Strothers	2-9-6	1	75
Tidal:			
Carter	24-9-6	4	231
Fixico	26-9-6	7	1,160
Harjo	25-9-6	1	20
Harjo, T.	23-9-6	3	45
Turman:			
Cudjo	35-9-6	4	604
Grisso	35-9-6	1	58
Jones	34-9-6	4	929
Total		274	34,043

Searight Pool

Amerada:			
Johnson	4- 9-6	1	26
Strothers	3- 9-6	2	310
Barnsdall:			
Jackson	5- 9-6	2	33
Carter:			
Davis	4- 9-6	3	315
Frazier	3- 9-6	5	654
Carter et al:			
I.T.I.O.	11- 9-6	1	464
Kiker	2- 9-6	1	11
Skiff	10- 9-6	1	150
Mandler	3- 9-6	2	5
Slick	11- 9-6	1	1,580
Scott	26-10-6	1	12
Stewart	10- 9-6	1	555
Strothers	11- 9-6	1	925
Gypsy:			
Cudjo	4- 9-6	3	642
Nevins	32-10-6	1	670
Magnolia:			
Varnum	32-10-6	2	964
Mid-Continent:			
Grayson	34-10-6	4	25
Saloche	33-10-6	6	375
Mid-Continent & Homaokla:			
Nevins	32-10-6	4	,1,320
Pine:			
Lula	4- 9-6	1	18
Prairie:			
Cannon	33-10-6	1	2
J. Carter	10- 9-6	1	3
Houch	33-10-6	1	3
Hurford	33-10-6	1	20
Kincaid	33-10-6	2	60
Wimer	22-10-6	1	15
Pure:			
Aldridge	3- 9-6	4	841
Shell:			
Strothers	3- 9-6	4	173
Sinclair:			
Polly	3- 9-6	4	1,225
Superior:			
Varnum	4- 9-6	1	0
Texas:			
Fleet	4- 9-6	1	20
Twin States:			
Varnum	4- 9-6	2	120
Wilcox:			
Chupco	4- 9-6	7	188
Total		73	11,713

East Seminole Pool

Barnsdall:			
Keypaya	7-9-7	1	20
Continental:			
Johnson	18-9-7	1	1,590
Gypsy:			
Harjo	18-9-7	1	0
Magnolia:			
Drewey	18-9-7	1	20
Marland:			
Buring	17-9-7	1	150
Marland & Sinclair:			
Perry	18-9-7	1	148
Prairie:			
Stubbs	18-9-7	1	20
Sinclair:			
Coody	18-9-7	1	1,290
G. Johnson	18-9-7	1	65
Thompson "B"	18-9-7	1	1,100
J. Warrior	17-9-7	1	40
S. Warrior	17-9-7	1	75
Total		12	4,515

TREATING OIL BY USE OF CHEMICALS

(Continued from Page 41)

When there is more than 3 per cent of free water, it is possible to overcome this situation. The lubricator is inverted and screwed into the flow line from below, and the chemical is introduced upward into the flow line by being displaced by water in the lubricator. Water, being heavier than the chemical, goes to the bottom of the lubricator and forces the chemical upward at a rate as low as half a pint a day. The chemical is introduced as near to the well as possible but before the gas is drawn off at the separator. The gas agitates the emulsion and causes the chemical and the oil to mix more thoroughly.

To Assure Effective Mixture

To be further assured of getting chemical and cut oil to mix, it is often advisable to insert in the flow line one or preferably two joints of baffled pipe. Baffled pipe is of little or no value unless the oil is coming through the flow line at a velocity sufficient to keep the emulsion agitated while it is going through the baffles, and even then the volume has to be fairly large to warrant the expense. On wells of small production results are generally satisfactory without the use of baffled pipe. The pipe containing the baffles should be of a larger size than the flow line, so that no additional back pressure is put on the well. The baffles are inserted in the pipe at intervals of approximately 1 foot, alternating from side to side. They consist of flat pieces of iron which are welded either at right angles to the pipe or with the acute angle facing the direction of flow and which extend slightly past the center of the pipe. When the emulsion and the chemical enter the baffled pipe they hit the baffle, the flow is somewhat slowed up, and they are thrown to the opposite side of the pipe; a foot farther along they hit the baffle on the opposite side of the pipe and are deflected back again. These cycles are repeated throughout the length of the baffled pipe, and as a result the emulsion and the chemical are more intimately mixed.

Heating the Fluid

After leaving the baffled pipe the oil emulsion passes through a boiler or heater before entering the wash tank (unless steam coils are used). General practice has narrowed down the manner of heating the fluid to three ways—by running the oil through a heater, by heating the wash tank by means of circulating heater, and or by the use of steam coils in the bottom of the tank. The last method is most generally used and heats satisfactorily, but except where the boiler is being used for other work it is not considered good practice, because of the high fuel consumption. The best results are usually obtained, with a decidedly lower fuel consumption, by running the emulsion through a boiler or heater before it enters the wash tank or by running the water in the wash tank through a heater before the cut oil is introduced into the tank. A boiler can handle more oil, more easily maintain the proper temperature, and use less fuel than is needed for steam coils. For most emulsions the temperature required is between 120 degrees and 150 degrees Fahrenheit. Most companies have junk boilers which could be utilized for treating cut oil. The fire in the boiler is controlled by a thermostat to give a uniform heat and utilizes a much smaller amount of gas than is used in generating steam for steam coils. Where it is necessary to have a boiler set for other uses, it may not be advisable to set a special treating boiler.

Location of Wash Tank

The wash tank should be located as close to the boiler as safety permits. The emulsion passes down through a vertical conductor or boot, which may or may not be baffled, and goes out into the wash tank through four holes, the centers of which are 90 degrees apart on the pipe and about 8 inches from the bottom of the conductor. At the top of the boot a gas relief line reduces agitation. In Figure 1 the boot is shown at one side of the tank, but it is probably equally efficient if placed in the center. As the emulsion comes from the four holes in the bottom of the boot, it is diffused and slowed up by the hood or spreader that encircles the boot immediately above the holes; then it passes upward toward the top of the tank to the outlet, which is on the opposite side of the tank from the inlet and a little lower.

As the emulsion is broken down the water settles to the bottom of the tank and

the oil rises to the top. Between the two fluids there is generally a layer of emulsion which has not broken down. To take care of this it is advisable to have a connection on the side of the tank for a suction pump, so that the emulsion can be drawn out and recycled. No burn pits are needed. The water that settles to the bottom of the tank is drawn off through an automatic siphon, which operates on a difference in pressure between the tank and the line A-D (Figure 1). The water from the tank is taken off at C. The connection A can be raised or lowered, its position depending on the amount of water to be drawn off.

The Settling Tanks

After the water and the unseparated emulsion are drawn off the oil is run from the wash tank to a settling tank, where any remaining water settles and is drawn off. The connections on the settling tank are the same as on the wash tank. After the oil comes to the top of the settling tank it goes into the stock tanks. In addition to the settling tank shown in Figure 1, some companies use a second 250-bbl. tank, so designed that the oil gets more horizontal travel and the water has more time to settle out. This additional tank is not necessary for most emulsions obtained in the Mid-Continent Fields.

The plant just described is a typical plant that has been successfully used in many oil fields. There are other successful plants which differ in some respects, but the essential points are much the same. In some plants, where the emulsion is coarse and water settles out readily, and where the production is small one tank serves the combined purpose of a wash tank and a settling tank. On the other hand, where it takes a long time for the water to settle out it may be advisable to use a hay or excelsior tank.

The main points to be observed in treating oil by chemicals are summarized below:

1. The chemical should be introduced as close to the well as possible. If an oil and gas separator is used the chemical should be introduced between the well and the separator.

2. The chemical should enter the flow line at uniform rate.

3. A better and more uniform heat can be obtained, at a minimum cost, by running the emulsion first through a boiler or heater or by heating the wash tank by means of a circulating heater.

4. Agitation should be reduced to a minimum after the emulsion enters the wash tank, to allow time for the water to settle out.

ROUGHNECK NOW TAKES READILY TO GOLF GAME

(Continued from Page 39)

are those who say that with a little more seasoning he will beat his dad.

Mayor, Roughneck, Skinner, Minister

Mayor Harber is an enthusiastic member of the club and often is seen on the links, but he makes no extravagant claims to proficiency as a golfer. Walter T. Pierson, a roughneck, still consumes about 60 strokes for the 9 holes. So do John I. Hammond and "Blacky" Houser,

And here is Bill again, sinking the putt that made a birdie on No. 9.

both skinners. Rev. W. O. Leach, pastor of the Seminole Baptist Church, is a regular player and has earned the name of being a good sport.

Among men of the greater Seminole area, directly or indirectly interested in some phase of the oil industry, who are active in support of the club and play golf frequently are J. D. Campbell, independent operator; Charles M. Ferguson, district manager for the Parkersburg Rig & Reel Co.; Elmer Harber, president of the State National Bank, Seminole; T. J. Litman, tool foreman for the Magnolia Petroleum Co.; George Killingsworth, retired oil man; Harvey Hicks, rig building contractor; William Atmar, Halliburton Oil Well Cementing Co.; Ed Marshall and J. P. Boles, Ford Motor Co.; and Gurney Peeples, district superintendent for Black, Sival & Bryson.

Sunday is the big day at the links of course, the afternoon usually seeing 40 to 80 players out. Friday and Saturday are good days, too. Many play evenings throughout the week. Women are beginning to avail themselves of the advantages of the club and it is expected that in the course of time they will play as important a part in the life of the club as they do in other similar organizations.

Used to Be a Farmer

Bill Craig's entrance into golf was not by the usual route. He did not start as a caddy as men filling places like his ordinarily do. Bill was a plain farmer. He was born on a farm in Pike County, Missouri, and when he was 10 years old he went with his parents to Oklahoma in 1891, settling just south of Pauls Valley on a ranch and residing there three years. He lived on a farm near Shawnee next. Here he was chosen road supervisor for the northern half of Rock Creek Township in Pottawatomie County. One day in 1921 while he was doing some grading he drove through the gateway of the Shawnee Country Club and graded the club's road from the highway to the clubhouse. This friendly act led to Bill being offered the job of caretaker and manager. He didn't know anything about golf, but he did know a lot about how to change the appearance of the earth's surface by means of sundry cutting, scooping, filling and massaging operations. And that was important. After due deliberation Bill left his big alfalfa farm and took up his new work at the Shawnee club.

Two old worn out mowers comprised the mechanical equipment with which Bill Craig started in to improve the grounds of the Shawnee Country Club. He did the best he could with them and achieved excellent results. Later the club bought a new mower and a tractor for Bill's use.

Then He Caught It Himself

Bill watched the golf players with tolerant amusement at first, then with mild interest and eventually with an irresistible itching to try the thing himself. Feeling very awkward and self-conscious, he began practicing strokes, acquired the knack of gripping a club so that it wouldn't slip from his fingers and knock some friend unconscious. After a while he mastered the art of swinging a driver so that it would hit the ball and not merely dig a deep gash in the landscape.

Anybody knows what the sequel was bound to be—that is, anybody familiar with the obsession which seizes a man who once begins fooling with a golf ball. Bill became an incurable addict. He was a good player long before he resigned his job with the Shawnee club to take over supervision of the Seminole project.

Mr. Craig keeps a stock of golf clubs and other equipment at the clubhouse for sale to players. He has handled about $15,000 worth of such equipment since he opened the Seminole course. Sporting goods supply houses provide him with everything for which he is likely to find a demand, and he never has received a c.o.d. shipment of anything, which seems to indicate that Bill's credit is pretty good. Then, too, he coaches novices in the mystery of the game and he conducts a repair shop.

Plans for the future of the Seminole Golf and Country Club include erection of a modern clubhouse, equipped with showers, lockers, ballroom, banquet hall, lounge room, etc. Backers of the club say that plans for such a clubhouse will take definite form within a year. A modest structure, with unpretentious furnishings, serves for the time being.

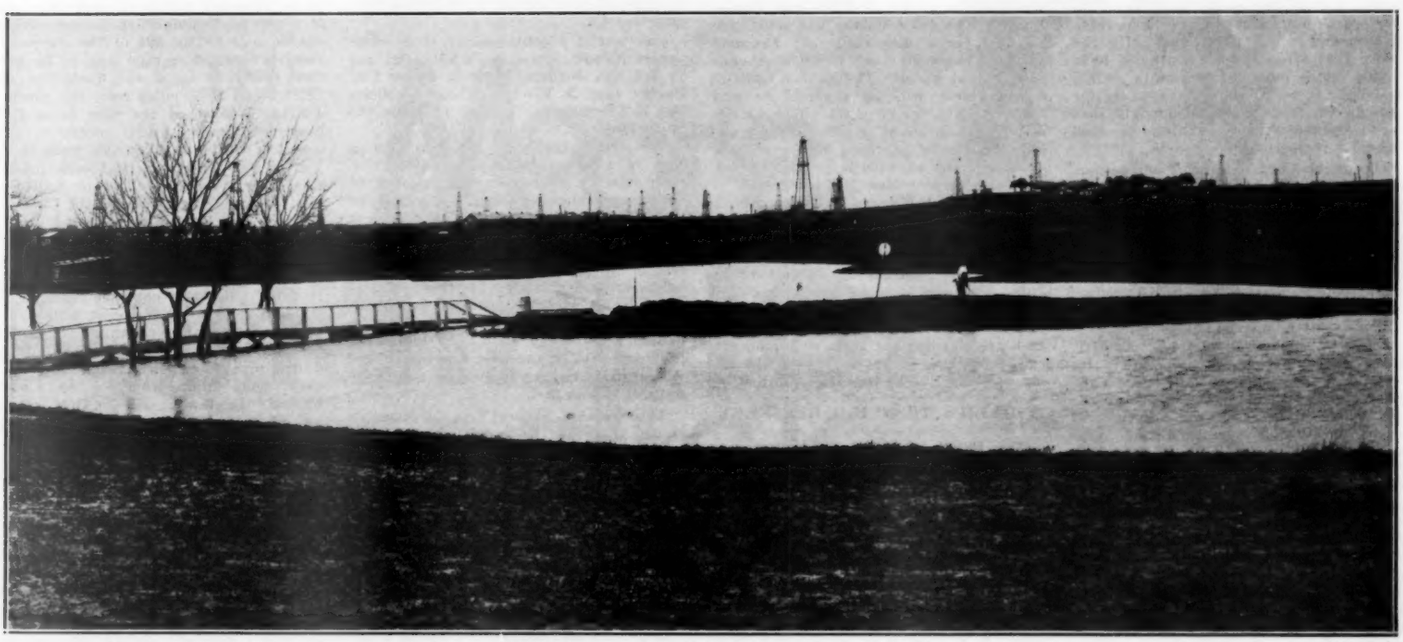
SOUTH PENN WILL NOT STOP POSTING PRICES

PITTSBURGH, Pa., June 15.—"We are contracting for more oil as against spot buying in the Bradford Field," L. W. Young, president of the South Penn Oil Co. said in commenting on rumors circulating through the Oil City fields that the Seep Purchasing Agency of the South Penn planned to abandon its system of setting crude prices on the National Transit lines.

"Possibly the fact that we are doing more contracting may have given rise to reports that posting of prices would be stopped," he said.

"Of course, there is never any way of telling what we may do in the future, but we have been posting prices and delivering credit balances to producers for some time.

"We are signing many contracts for year to five year periods covering the entire output of some producers. However, we are still setting prices on spot oil. Sometimes, of course, under contracts for entire output, our prices are not the same as those posted for spot delivery, or depositing on credit balances. It does not necessarily follow, however, that posting of prices will be discontinued on that account."



No. 8 hole of the Seminole Golf and Country Club course. Its par 4 is credited with being the hardest to make in the whole State of Oklahoma. It looks the part.

Oil Industry Construction News

STEEL INDUSTRY ADDS TO REMARKABLE RECORD

By B. E. V. Luty

PITTSBURGH, Pa., June 17.—Pipe mills have no definite information in connection with reports mentioned a week ago to the effect that the Anaconda Copper Co. is planning to lay a 200-mile natural gas pipe line from Wyoming to its works in Montana. No large natural gas line projects are just now being talked of in the trade. There are chances that some may develop, while it is probable there will be various relatively small orders for line pipe, for feeders and branches to lines now built or being built. The mills making the larger diameters of pipe are at present well filled with orders, which will last them several months.

There is a fair run of business in casing, drill pipe and other oil country goods, perhaps a trifle more than earlier in the year. As to prospects, there are chances of more drilling developing, but conservative pipe men are indisposed to make definite predictions.

Demand for standard pipe has been approximately uniform in the past three months. May bookings may have been a trifle under those of April, but there was no material decrease. There is no seasonal increase but it is not clear that a seasonal increase should be expected. As to the decline in building contracts awarded, as commonly reported, that does not seem to have been a factor thus far as shipments of standard pipe since January 1 are, with some important mills at least, somewhat ahead of those in the same period last year. Later on the reported decline in building may produce a different showing in pipe tonnage.

The steel industry as a whole has added to the remarkable record it has been making lately, that of running at a very high rate and failing to show the regular and invariable seasonal decrease recorded in the past. Production of steel ingots in May was at the highest daily rate in the history of the trade. Never before in an active year was May the high month, March usually taking that position, occasionally April. There has been no visible decrease this month.

The May report of ingots produced showed a slight decrease from March in open-hearth but an overbalancing increase in Bessemer. This is in line with the theory that after several months of hard driving some open-hearth units would fail, while it shows that the pressure for steel deliveries kept up so strongly that some consumers were willing to take Bessemer in lieu of open-hearth.

The Steel Corp.'s unfilled obligations decreased by 123,596 tons in May, making a very favorable showing as May has regularly shown a much larger decrease. Each one of the preceding five months had shown an increase, whereas decreases began in March last year and in January in each of the two preceding years.

The question now is how long the extra heavy production of steel will last. While there was heavy and slowly increasing production from late 1922 to the middle of last year, since then production has been extra heavy. Steel ingot production in the biggest calendar year prior to 1928 was 46,936,205 tons, in 1926, while production in the biggest 12-month period through June was almost as heavy, in the 12 months through June, 1927. Production in the 12-month period now ending is about 54,600,000 tons, or over 15 per cent increase. Such a special rate can hardly be expected to continue, considering that general trade had previously been active. As there is an absence of the usual slowing down for summer there is no room for a picking up afterwards and the preponderating chance seems to be that there will be a slow decline in the last months of the year, back to what may be considered normal.

Finished steel prices have been steady all along the line, showing no disposition to change.

LONE STAR GAS CO. WILL LAY 100 MILES

DALLAS, Tex., June 15.—Nine central Texas towns in Hood, Somervell, Bosque and Falls counties have signed up their quotas to receive natural gas from the Lone Star Gas Co. This means extensive pipe line building by this company in central Texas this summer.

The towns which will be connected with the new lines within a few months are Hamilton, Granbury, Glen Rose, Meridian, Whitney, Lott, Rosebud, Morgan and Clifton.

It will require about 100 miles of pipe line, exclusive of distributing lines, to serve these towns. This project will consist of 50 miles of 6-inch line, which will tap the company's two 18-inch trunk lines in northern Hood County, extending south by way of Granbury, Glen Rose and Walnut Springs, thence to a point about 10 miles south of the latter town.

About 12½ miles of 3-inch pipe will be used in laying extensions to Morgan and Iredell, with 36 miles of 4-inch continuing on south to Meridian, Clifton and Valley Mills. The company is to build a 10-mile 4-inch lateral from its Waco 12-inch line to Whitney, and also a 6-mile 4-inch line from Van Altsyne to Howe, Grayson County, while Grapevine, Tarrant County, will receive natural gas through a 5-mile 4-inch line off the Oklahoma-Dallas trunk line system.

The Community Natural Gas Co., a subsidiary, will lay distributing lines in each of these towns, and market the gas to domestic and industrial consumers.

OWENSBORO GAS LINE

OWENSBORO, Ky., June 15.—Connor & Sons, contractors for laying the 8-inch gas main for the Owensboro Gas Co., will practically complete the work within a few days. They will start at once on a high pressure line to be laid from the gas plant to the corner of Fifth and Poplar Streets. The gas company has made connections for a new main out Freeman Avenue, connecting at Griffith Avenue and Walnut Street. The line on Griffith Avenue west will be replaced to city limits with a larger main. The district regulator station at Walnut Street and Parrish Avenue has been completed. Another of these stations is practically finished at Moseley and Ninth Streets.

The Missouri-Kansas Pipe Line Co. is pushing its gas line from the Jones Pool, in Daviess County, Kentucky, into Owensboro, Ky., and will make an effort to have gas for delivery at Owensboro by July. The line is being welded gas-tight and close to 7 miles are practically completed. Owners of gas wells in the Jones Pool are cleaning out their wells and getting everything in shape to turn the gas into the new line by the time specified.

PHILLIPS TO BUILD REFINERY

The Phillips Petroleum Co. has purchased 82 acres of ground on the outskirts of Wichita, Kans., on which it is to construct a complete refinery of 5,000 bbls. capacity. The company has not given out details of its plans, but it is understood the refinery will include cracking units and topping and lubricating oil plants. The site is near the refineries of the Barnsdall and Golden Rule oil companies on the Wichita Terminal Railroad. It is said that construction is to begin with 30 days.

THREE COMPANIES PLAN CALIFORNIA GAS LINES

SAN FRANCISCO, Calif., June 17.—Development of natural gas in California opened with the laying of the Pacific Gas & Electric Co.'s pipe line from Kettleman Hills to San Francisco Bay district, have brought about direct competition of three companies for permission to serve inland valley communities with the oil field by-product.

Pacific Gas & Electric Co. and the newly-formed Western Natural Gas Co., virtually a subsidiary of the Western Gas Co. of New York, have filed applications with the State Railroad Commission for certificates of public convenience and necessity permitting construction of pipe lines through the San Joaquin and Sacramento Valleys.

Southern California Gas, subsidiary of Pacific Lighting Corp. which is engaged in distributing natural gas in southern California, has made a third application to distribute not only natural gas but oil and water in Merced, Madera, Fresno and Kings Counties.

The application of the Pacific Gas & Electric Co. is an amendment to its original request filed May 7 to construct a natural gas system from Kettleman Hills and Buttonwillow Fields to the Bay region. This line is expected to be completed in August. The company seeks authorization to construct 162 additional miles of pipe line for natural gas in Fresno, Stanislaus, Merced, San Joaquin, and Contra Costa Counties, particularly to serve the cities of Modesto and Stockton. Proposed outlay is set out as $5,000,000.

The Western Natural Gas Co., which filed incorporation papers at Sacramento, May 26, purposes to construct 200 miles of pipe line at a cost of between $8,000,000 and $9,000,000.

The company has contracts with the Standard Oil Co. of California and Marland Oil Co. for output of natural gas at Kettleman Hills. Using an 18-inch pipe, Western Natural Gas proposes to serve Sacramento, Merced, Stockton, Lodi, Richmond, Crockett, Pittsburg, Antioch and other municipalities. Western Natural Gas Co. was formed under auspices of executives of the El Paso Natural Gas Co.

The territory contested by three companies is now served with artificial gas by the San Joaquin Light & Power Co., Pacific Gas & Electric, Coast Counties Gas & Electric Co., Turlock Gas and the Modesto Gas Co.

Western Natural Gas Co., maintaining that it will not enter into competition with existing companies, has not secured necessary franchises, but will apply for them immediately. Its officials point out that the territory to be served has a population of over 250,000 and that progress of its rapidly growing cities will be enhanced substantially by this development, which will also prove an important step in the policy of oil conservation, in as much as many industries along the proposed path of the pipe line use oil for which the company hopes to substitute natural gas as fuel.

The Western Natural Gas Co. bases its claim for the Railroad Commission's award over the Pacific Gas & Electric Co.'s application on the fact that contracts are held for consumption of natural gas by many industries in the communities to be served, notably the Standard Oil Co.'s refining plant at Richmond. These contracts up to date call for 15,000,000 feet of gas daily, and other contracts are said to be pending for an additional 10,000,000 feet. Officers point out that 20 wells to be drilled at Kettleman will furnish 500,000,000 feet of gas daily, and that the capacity of the Pacific Gas & Electric Co. will be limited to 125,000,000 feet.

While no gas is to be distributed retail by the Western Natural Gas Co. except in communities where no such facilities exist at present, natural gas will be wholesaled to gas companies operating at present when occasion arises, executives declare.

Officers of the company include Paul Kayser, president of El Paso Natural Gas Co., and R. G. Frost, vice president and general manager of the Texas concern, both of whom will hold the same posts with the new company. Directors include Max Thelen, Paul Marrin and Gordon Johnson, San Francisco corporation attorneys and Marguerite Filen.

Southern California Gas Co. representatives testified that company expects to construct a 10-inch pipe line from Kettleman to San Joaquin Valley district at a cost of $1,317,500 and a 16-inch pipe line from Elk Hills to Kettleman Hills at a cost of $950,000 for 63 miles. The company expects to serve natural gas to consumers on its system of which Merced is the northern terminus for the same rate as that now charged for manufactured gas. The company asks for permission to authorize annual revenue of $317,329 from its 10-inch line and 8, 6 and 4-inch laterals. Industrials to be served with natural gas include Monolith Cement Co. and Yosemite Portland Cement Co.

It is stated that the 63-mile line will give the company a daily capacity of from 45,000,000 to 55,000,000 feet. The company plans to store natural gas in the summer months for winter use. Kettleman Hills gas will be used to supply not only San Joaquin Valley but Los Angeles territory as well.

EDMONTON DEVELOPMENT

CHATHAM, Ontario, June 15.—Capital expenditure by Northwestern Utilities, Ltd., of Edmonton will this year amount to $500,000, according to a statement from Julian Garrett, manager of the company. Of this $317,000 will be spent in the construction of the first stage of a duplicate main line from the Viking Field to Edmonton. The work is to be financed partly through the issue of 6 per cent cumulative prior preferred shares, and partly out of the company's reserve fund. The pipe line to be built this year will be a 10¾-inch line and will extend 20¾ miles from the town of Viking, 7 miles of the pipe being fully protected against alkali corrosion. The company will drill three new wells in the Viking gas field, and will take production from a fourth well to be drilled by the Hudson's Bay-Marland Oil Co.

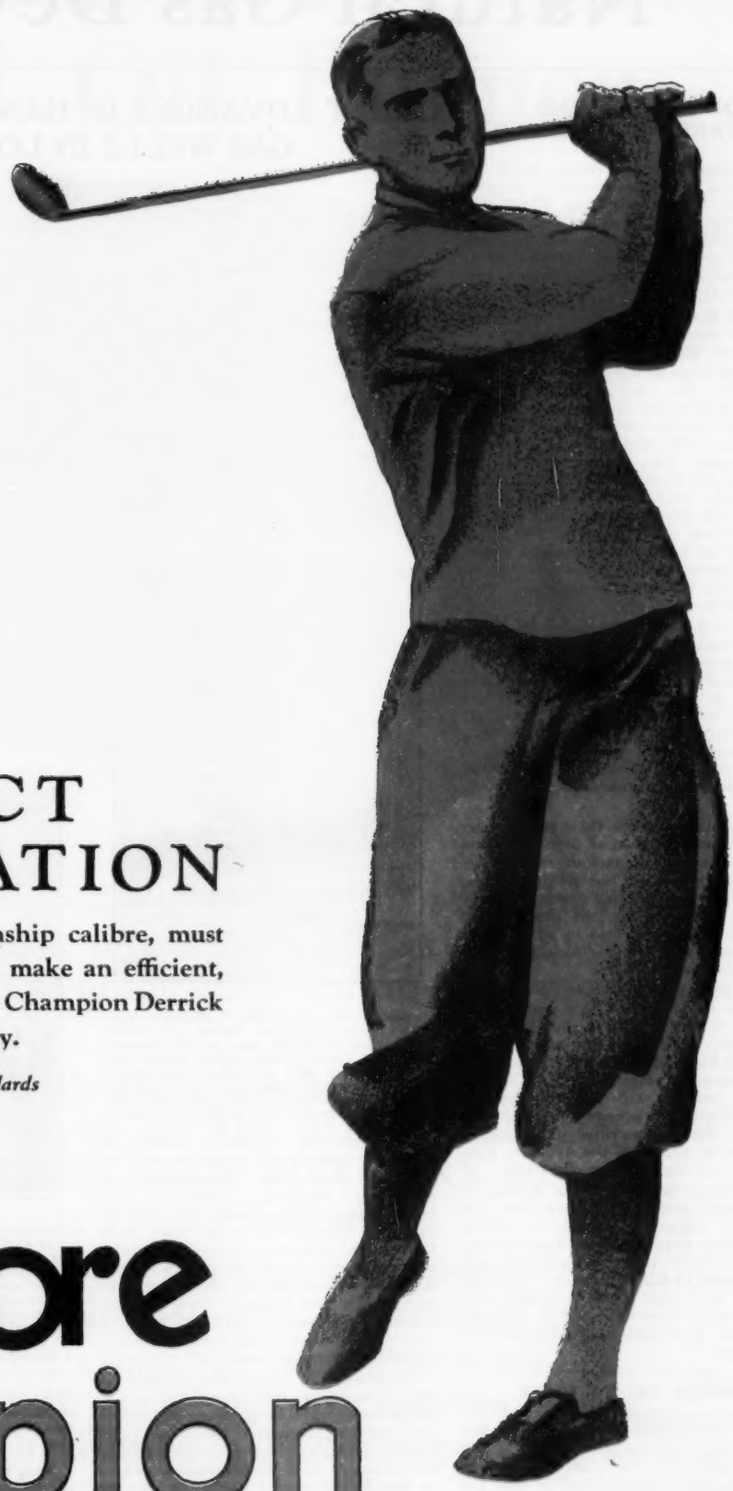
NEW TANKS AT REFUGIO

SAN ANTONIO, Tex., June 15.—Houston Oil Co. is constructing two 55,000-bbl. storage oil tanks at Refugio adjoining two similar tanks of William F. Morgan interests, which are building a 6-inch pipe line (Gulf Coast Pipe Line Co.) from Refugio Field to Corpus Christi. Eggleston Oil Co. has erected one 55,000-bbl. tank at terminal at Corpus Christi.

REFINERY PLANS REPORTED

Plans for the construction of a refinery at Corpus Christi, Tex., near the ship canal are being made, it is understood, by the Globe Oil & Refining Co., Blackwell, Okla. This previously was reported as an enterprise of George B. Eggleston, San Antonio, Tex., who is said to be interested in it. No official statement has been given out by the company.

AMONG CHAMPIONS



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Natural Gas Developments

CARBON BLACK FIRMS EXPANDING PRODUCTION

An authority in the carbon black industry says the present monthly production rate is approximately 25,000,000 pounds, equivalent to an annual production of 300,000,000 pounds, and that this rate will undoubtedly be increased when present projected plant extensions and additions are completed.

Binney & Smith Co. is now said to be doing an annual business in the product of between $30,000,000 and $40,000,000.

Another large producer, the Godfrey L Cabot Co., Inc., is adding three new plants, all of which are in course of construction, two in the Panhandle district of Texas and the third in Seminole County, Oklahoma. Two of the largest carbon plants in the world, owned by this company, were erected at Skellytown and Pampa last year, and addition will be made to them this year. The new Texas units will be located at Kingsmill, Moore County, where a model town is being constructed for housing the company's staff of employes.

The plant in Seminole County, Oklahoma, instead of making the black from natural gas, will derive its output from fractions of gas removed in the refining process and now being wasted. These fractions will be purchased by the carbon manufacturer under long term contracts from several gasoline plants and will be conveyed to the factory through pipe lines, and vaporized prior to burning.

The Century Carbon Co.'s program involves the construction of four new units of 32 burning houses each on recently acquired properties in the Richland, La., field. The company has access to 3,000 acres of gas fields in that location and the expansion is expected to add 10,000,000 pounds annually to the present domestic production.

More than $1,500,000 will be expended by the J. M. Huber Co. this year for the erection of new plants in the Panhandle carbon black field for the manufacture of carbon black and clay. One large plant under course of construction at Borger, in that section, will produce approximately 15,000,000 pounds per year. The company recently increased its Louisiana holdings by acquiring the Western Carbon Co. and the Ebony carbon Co.

The export market for the product is increasingly active. A report from the American commercial attache at Berlin reports that Germany's purchases of carbon black from America during the past year totaled 13,432,720 pounds, a marked increase over 1927 when Germany's imports totaled 9,299,871 pounds, the values being $1,176,069 and $837,418, respectively.

MORAN CO. TO DRILL

SAN ANTONIO, Tex., June 15.—Moran & Co. of Texas, Inc., which a few months ago completed a natural gas line from the White Point Field in San Patricio County to the Humble refinery at Ingleside, has completed a deal with the Houston Oil Co. and they will drill on Houston Oil Co.'s acreage at the north end of the White Point gas field to develop gas for its line to the Ingleside refinery.

GAS EMPLOYES BANQUET

CHATHAM, Ontario, June 15.—Employes of Northwestern Utilities, Ltd., of Edmonton to the number of 60 were entertained by the company recently at a banquet at the MacDonald Hotel. Addresses were given by President C. J. Yorath and Manager Julian Garrett.

GREAT ADVANCES IN HANDLING BIG GAS WELLS IN LOUISIANA FIELD

By D. H. Bancroft

SHREVEPORT, La., June 15.—It was not so long ago, in fact only last December, at an A.P.I. meeting in Chicago that a Bureau of Mines engineer inferred that it could not be done. That being the case, the fact that during the last two months, in the Richland Parish gas field siphons have been installed in several 50,000,000 to 60,000,000-foot gas wells against working pressures of close to 1,100 pounds—with no loss of gas—should be interesting news.

It is generally agreed that theoretically the proper time to install siphons in gas wells is immediately after their completion. However, in the case of large volume, high-pressure wells, it has usually been necessary to open the well into the

Industrial Gas Co.'s No. 1 Mulhern, Section 19-16-6, Richland Parish gas field, open flow 55,345,500 feet at 900 pounds, installing 1¼-inch upset tubing against full rock pressure with no loss of production. Shows "A" mast, truck unit, and joint being made up. Six hundred feet had been snubbed at the time the picture was taken.

air through side outlets to relieve the pressure sufficiently to permit the installation of the pipe. The dangers, and oftentimes disastrous effects of thus blowing large volume wells into the air are well known. In some cases wells have drilled themselves deeper into water and have been ruined. In others connections have been cut off, men have been hurt, costly and stubborn fires have resulted. It is safe to say that in every case damage to the well results whether the well be large or small.

Conditions in the Richland Field in this connection are unusually severe. Wells range in volume up to 65,000,000 feet and rock pressures border on 1,100 pounds. Sand conditions are probably as severe as are to be encountered anywhere in the Mid-Continent Field. In one instance an entire christmas tree was cut off in a very few minutes. Several wells in the field, in spite of high pressures, are showing some water. The heavy withdrawals which will be made next winter to serve the several large pipe lines now under construction are certain to cause water difficulties. The installation of siphons before the pull commences is, in the opinion of most of the companies operating in the field, extremely important. Any method of installing siphons which during the installation permits the escape of any appreciable amount of gas is certain, in the case of large wells, to end in disaster.

The situation has, however, been successfully met by the Southern States Co. of Shreveport, a contracting company specializing in this type of work, using equipment and methods invented, perfected and worked out during the last year or more by H. C. Otis, assistant superintendent in charge of gas production and pipe lines for the Arkansas Natural Gas Corp. Eleven wells, with an average open flow of approximately 50,000,000 feet and with average pressures of over 1,000 pounds, have been successfully tubed and in no case has more than an estimated 1,000 feet of gas been lost during the entire operation. Nine of these wells had not yet been connected to a pipe line, necessitating installing the pipe against the field rock pressure—in one instance 1,080 pounds. The time necessary to complete a job, including moving in, setting up, running the pipe and tearing down, varied from two to four days.

The Equipment

A portable "A" mast made of 4-inch drill stem served as a derrick. Motive power to handle the string of pipe as well as to move men and equipment consisted of a heavy-duty truck with an ingeniously mounted drum driven through

Industrial Gas Co.'s No. 1 Earle, Section 5-16-6, Richland Parish gas field, open flow 39,535,540 feet at 1,020 pounds; 1¼-inch upset tubing being snubbed in against full rock pressure with no loss of production. Forty-eight joints had to be snubbed before pipe would sink of its own weight. Picture shows joint being snubbed in.

a variable power takeoff. Five thousand foot string of 2-inch tubing can be handled with this power unit. Since there is no escape of gas there is no possibility of the engine exhaust setting the well on fire.

Two tubing heads are used to permit the passage of collars. The control heads are equipped with balancing by-passes that prevent the inadvertent opening of one head unless the other is fully closed. A stuffing box designed for this work is installed just below the control heads, permitting not only the removal of the control heads, but also the repacking of either head at any time during the operation. A closing tool which opens after the pipe is landed on bottom, the stuffing box packed, and the control heads removed, is run immediately above the perforated nipple, or screen. Two snubbers are used, stationary and traveling. The former holds the pipe from blowing out, while the latter is being raised for a new

(Continued on Page 97)

SHALE GAS OPERATIONS AROUND KANSAS CITY

KANSAS CITY, Mo., June 15.—Jackson County, Missouri, now has between 200 and 300 gas wells. A little more than a year ago there were only 70 gas wells in the whole of the Kansas City-Paola gas field. Now there are between 1,200 and 1,500.

The wells in the whole gas field now have a total open flow of over 200,000,000 feet, gas men estimate. Figuring at the minimum line pull of 10 per cent of the open flow that means 20,000,000 feet available for use.

Only part of the field is connected to pipe lines, but 15,000,000 feet daily are being sold from it. Most of the towns of southern Jackson County and northwestern Cass County, in Missouri, and parts of Johnson County and most of Miami County in Kansas are being supplied with gas.

The Bannister ridge field southeast of Kansas City on Ninety-fourth street is the latest development, opened last winter. There are now about 80 wells, many with a daily flow of close to 1,000,000 feet.

Hughes Bryant brought in a well last week on his land at the southeast corner of Swope Park, Kansas City.

At Lone Jack, in the southeast corner of Jackson County, another new field has opened. There are 14 wells in and around the town.

The Lees Summit Field has 68 gas wells, 23 within the city limits. The first well in Lees Summit was brought in February 8, 1928, by M. J. White. It was a 750,000-foot well and has furnished practically all of Lees Summit's supply since then.

Several good wells have been drilled around Raytown. There are a dozen or more wells north of Martin City. Good gas has been found from there to the field across the state line northwest of Martin City.

At the Unity School of Christianity farm, between Kansas City and Lees Summit, there are 16 gas wells and 11 oil wells. The oil wells produce from 1 to 2 bbls. a day.

Near Grandview there are some oil wells of about the same strength and some newly drilled gas wells. Gas men expect the Grandview formation to link with the field north of Martin City.

The shale gas field extends from Kansas City southwest into Oklahoma, according to C. S. Shippey, who is called the "father of shale gas," and has been associated for years with S. J. Maddin. It was a strip 50 or more miles wide, he said.

Shale gas, so far as was known, was practically inexhaustible if the wells were handled correctly, Mr. Shippey said. Cement and brick plants and other large industries have been using the same wells in southeastern Kansas for years. At that end of the field shale gas is used in making glass. There are some sand gas wells in the field. They will soon play out, leaving only the shale wells.

WASKOM-MOORINGSPORT LINE

SHREVEPORT, La., June 17.—Sale of that part of the Dixie-Gulf Gas Co.'s gas line from Waskom, Tex., to Mooringsport, La., to the Arkansas Natural Gas Corp. has been made as another detail of the Arkansas' Waskom-Monroe-Richland 20-inch line. The section is 16-inch, 18 miles long. Previously the Arkansas had acquired the Dixie-Gulf's two 12-inch lines through LaFource swamp west of the Richland Parish Field. the first construction on the pipe line Moody-Seagraves interests had planned from Richland to Waskom.

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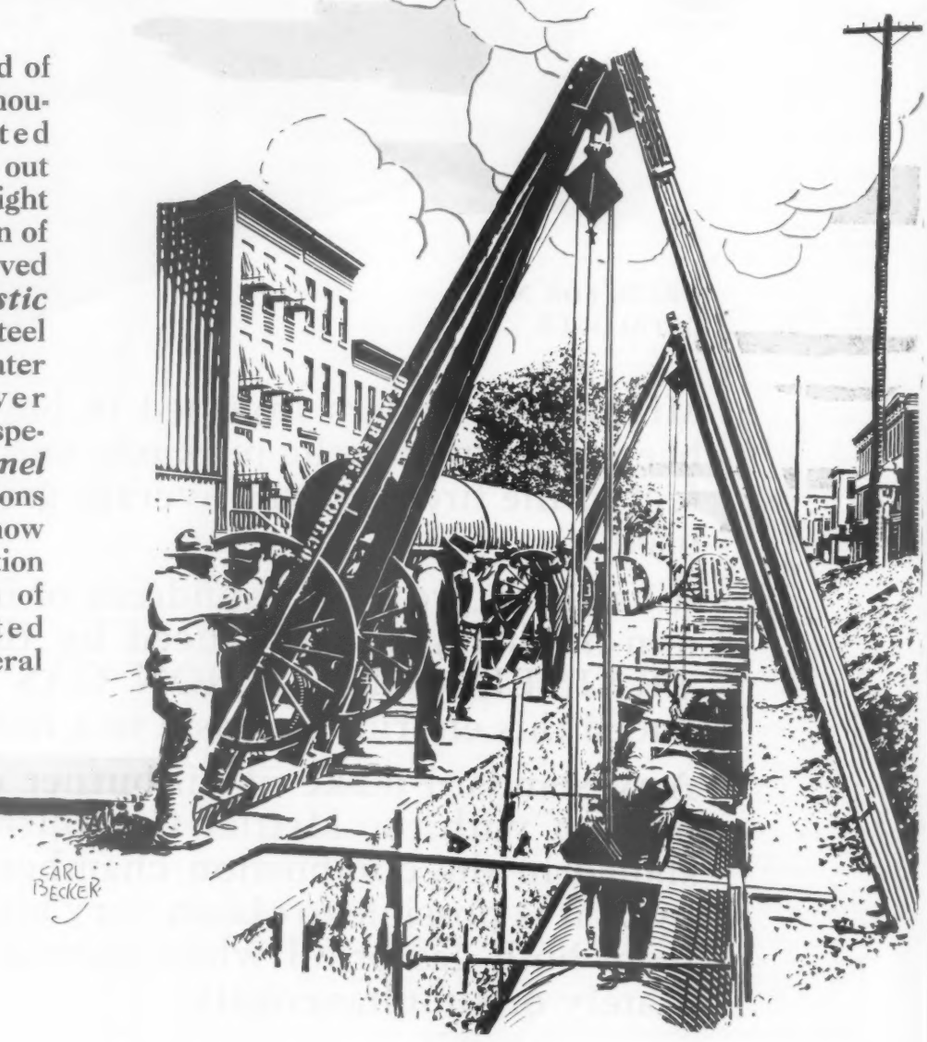

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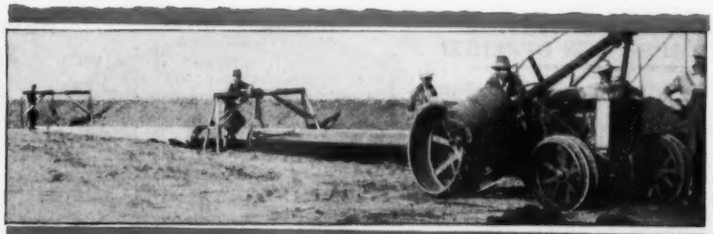
Write for our booklet, "The Protection of Pipe Lines." It is full of interesting information for the engineer.



Four hundred miles of the Empire Line between Pampa, Texas, and Kansas City are are coated with *Bitumastic Enamel.*

Eighty-seven percent of the coatings used on the Amarillo-Denver line were *Bitumastic* products. This picture shows the rolling rig method used on this 22" line.

On the Memphis Line that part (160 miles) which was laid in the flood regions paralleling the Mississippi was protected with *Bitumastic Enamel.*

The Atlantic Oil Line, which stretches from Midland to Port Arthur, Texas, is protected the whole 500 miles of its length with *Bitumastic Enamel.*

BITUMASTIC
Reg. U. S. Pat. Off.
ENAMEL

ATION—17 Battery Place, New York
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cago **Houston** **San Francisco**

EQUIPMENT AND SUPPLIES

VERTICAL GAS-DRIVEN COMPRESSOR OFFERED

The Chicago Pneumatic Tool Co., New York, is offering its vertical gas-engine-driven air or gas compressors, consisting of the model RHG-75, three-cylinder, four-cycle gas engine coupled to a duplex, double-acting, single or two-stage compressor for a wide range of pressures and volumes. While the unit has been especially designed for gasoline extraction service, it is adapted for well-flowing on

a large scale, for experimental work involving widely varying pressures, and for general booster service.

The compressor is available in a variety of sizes for both single and two-stage operation and for pressures up to 500 pounds per square inch. The compressor as a whole is compact, yet readily accessible. Large frame doors give convenient access to the interior of the frame and crankcase for inspection and adjustment. A service platform with stairs enables the operator to reach all parts of the unit.

H.L.H. CO. IS ORGANIZED

Organization of the H.L.H. Co. in Houston, Tex., to manufacture a combination pump and air lift device for wells has been perfected by G. A. Humason, J. P. Humason, his son, and J. A. Logan. The equipment previously has been made by the J. H. McElvoy & Co. for the elder Mr. Humason, the inventor.

The combination pump and air lift equipment will make possible the pumping and blowing of wells at the same time and also is said to prevent the sanding up of wells which is so common in the Gulf Coast. Mr. Humason asserts this equipment will make it possible to reclaim many old wells which have been abandoned and to prolong the life of others.

TRADE LITERATURE RECEIVED

"The New Way," an attractively printed and illustrated bulletin of 54 pages, gives interesting facts about Smithwelded pipe manufactured by the A. O. Smith Corp., Milwaukee, Wis.

The International Cement Corp., New York, is distributing an illustrated bulletin, "A New Record With Incor."

"Let's Start Something" is the title of a bulletin issued by the Lincoln Electric Co., Cleveland, Ohio, describing the Lincoln safety push button.

LINDE INCREASES CAPACITY

The Linde Air Products Co., New York, which established an oxygen plant in Shreveport, La., last August, has announced plans for doubling its capacity by the addition of an acetylene plant with 1,000,000 feet per day capacity. Construction of the addition has begun. A new Linde oxygen producing plant in Oklahoma City, Okla., has started operation. F. K. Buckalow is superintendent of the new plant, and A. B. Curtis, with headquarters in Dallas, is district superintendent.

BUSINESS NOTES

W. P. Turner, president of the Oil Country Specialties Manufacturing Co., Coffeyville, Kans., has gone to California to look after production in the new Hynes plant of the concern. He expects to remain about 90 days.

W. H. Grandsen, who has had wide experience in the selling of oil-field machinery and equipment, has opened a sales agency at 211 Commercial Building, Tulsa. Among companies he represents are Corken Pump & Machinery Co., Dayton-Dowd Co., Westco Pump Co., A. D. Cook, Inc., National Steam Pump Co. and Flexitallic Gasket Co.

The Continental Supply Co. is inaugurating a day-and-night service for oil operators in connection with its supply warehouse at Okotoks, serving the Turner Valley Field.

The Ford Chain Block Co. announces the appointment of C. A. Anderson as sales manager with headquarters at the general offices and works in Philadelphia, Pa.

At the annual membership meeting of the Natural Gasoline Supply Men's Association, A. J. Kerr of Tulsa was elected to the board of directors. Mr. Kerr is district sales manager of the Pittsburgh Equitable Meter Co.

ELECTRIC HAND SAWS

The Black & Decker Manufacturing Co. of Towson, Md., manufacturers of portable electric tools, announce three sizes of electric hand saws, 6-inch, 8-inch and 10-inch—these designating the diameter of the circular saw that each size will use. These saws will cross-cut and rip lumber up to 3½ inches thick and in addition can be used with a special metal cutting saw for cutting light gauge metal or with an abrasive disc for cutting slate, marble, tile, porcelain, etc.

CUSHING REJOINS DEARBORN

The Dearborn Chemical Co., Chicago, manufacturer of pipe line chemical pro-

W. T. Cushing

tective coatings and products for the protection of oil field materials from rust and corrosion, announces the return to its staff of W. T. Cushing who will handle No-ox-id and No-ox-idized asbestos pipe line wrapper in the oil and natural gas industry. Mr. Cushing, a practical pipe line man, was one of the first to recognize the possibility of correlating data on the effect of soil corrosion on pipe line systems and with F. Ray McGrew of the Standard Pipe Line Co. of Louisiana and W. G. Heltzel of the Sinclair Pipe Line Co. he interested the American Petroleum Institute in furthering this work.

NEW DEVICE INCREASES SAFETY ABOUT DERRICK

A new safety device, designed to prevent accidents to the "derrick monkey" or operators in the derrick is being manufactured by the Specialty Oil Tool Co., of Los Angeles, Calif. This device consists of a steel traveling-block, small but strong, having an eccentric slot and which operates on a rigid wire cable. This cable is fixed to the crown-block at one end and to a girt at a convenient level below the working boards. A rope or flexible cable is passed through a steel ring attached to the traveling block and is joined to the broad safety belt worn by the derrick man. This rope does not need to be long, for with a few feet of rope the operator can reach any portion of the derrick. In case of a fall, the short rope saves the operator from injury. The traveling block automatically releases upward so that in case the operator becomes entangled in the hook or elevator, there is no danger of pulling the rope, belt, or operator to pieces. The operator can free himself at any point on the cable and drop with full assurance that his fall will be a matter of a few feet.

This safety device has been installed on drilling wells in the Long Beach Field, where it has been adopted by leading operators. Features of the device include its safety (tested to 2,000 lbs.), its quick installation in any derrick, and its complete freedom to the derrick operator. Should it become necessary for the derrick man to change position in the derrick, he can do so with this device, as he is not confined to a stationary rope.

BUTLER INSTALLING 11 UNITS FOR REFUELING

The Butler Manufacturing Co., Kansas City, Mo., and Minneapolis, Minn., is finishing 11 large refueling units for use by Transcontinental Air Transport, Inc., at 11 airports along its transcontinental lines. Each unit consists of a truck on which are mounted a 750-gallon gasoline tank and a two compartment lubricating oil tank fitted with heating coils which take heat from the motor exhaust. The lubricating oil compartments are equipped with thermometers making it possible to serve oil at the temperature of the oil already in the motors of planes. This avoids warming up after taking on a new supply of oil.

Oil, gasoline and air are served to ships under power taken from the motor of the truck. Emergency hand pumps are installed for emergency use in the event of failure of the motor power.

OILWELL DEPARTMENTS MOVED

The Oil Well Supply Co. will make changes in its office buildings at the Imperial plant in Oil City, Pa., soon and will move its manufacturing and engineering departments to Oil City from Pittsburgh during the coming summer, according to an announcement by Benjamin F. Harris, president.

HINDERLITER GETS BANNER

A. G. Lott, superintendent of the Hinderliter Tool Co.'s new plant in Tulsa, has received from the Maryland Casualty Co. a merit banner, following a six months "no accident" campaign. The award signifies that there has not been a "lost time" accident during the period covered. It is the first award covering this type of manufacturing risk in Oklahoma.

LEPPER JOINS SALES FORCE

William Lepper, Jr., has joined the sales force of the Pittsburgh Equitable Meter Co., Pittsburgh, Pa. Mr. Lepper spent a year in the shops studying and building gas, water, gasoline and oil meters and gas regulators and appliances so that he is familiar with the company's products. After completing his course in the shops he spent six months in the sales department. Mr. Lepper represents the company in parts of western Pennsylvania, Maryland and West Virginia, working out of the home office in Pittsburgh.

LUCKY SMITH INVENTS FLUID LEVEL REDUCER

A novel method for starting a well to flow by the gas or air-lift means has been invented and patented by H. J. Smith of Long Beach, Calif., who is in the employ of the Richfield Oil Co. Mr. Smith, dubbed "Lucky" Smith, of Dewey, Okla., erected the first concrete oil storage tank, 3 miles east of Bartlesville, in 1905, and has operated extensively in the oil fields of Oklahoma nd Kentucky.

In computing the proper placing of the device in order that it would function properly in the well, Mr. Smith was assisted by Dean Taylor, who has charge of the field operations on all wells on the gas lift for the Richfield Oil Co.

The device which Mr. Smith has invented does away with the high pressure formerly required to start a well after it has been shut down and the fluid has risen in the well. Fluid level reducers are placed at intervals throughout the liquid in the well and the well is produced from these different levels through the various reducers, which are operated at successively lower pressures. The fluid level in the well is gradually reduced to the normal level. The uppermost device closes and remains inoperative as the lower ones open and produce the well.

WILL MAKE SURGE PUMPS

The Worthington Pump & Machinery Corp., Harrison, N. J., has received from the Dow Pump & Diesel Engine Co., Alameda, Calif., a license to manufacture Surge pumps, used in connection with petroleum refining.

LAYING NAYLOR PIPE LINES

The Cabot Co., Pampa, Tex., has installed several miles of 12-inch and 14-inch Naylor Toncan iron gas line pipe in 40-foot lengths, Victaulic coupled, and used to convey gas from the casinghead plant to the company's carbon plant. The Skelly Oil Co. has completed a natural gas line of 6, 8 and 12-inch Naylor Toncan iron pipe for gathering lines conveying casinghead gas to its plant No. 8, Borger Field, Texas. The Shaffer Oil & Refining Co., Mehan, Payne County, Oklahoma, has installed a 10-inch vacuum gas line of Naylor Toncan iron pipe in 40-foot lengths, Victaulic coupled. It is used to convey natural gas from wells to refinery.

with

TIMKEN *Tapered Roller* BEARINGS

Two of the Dreadnaught De Luxe line built by the Beaumont Iron Works. Timken Bearings help uphold the good "Dreadnaught" name.

THE Beaumont Iron Works equip the complete Dreadnaught De Luxe line of blocks with Timken Bearings. Neither thrust, nor shock, nor speed, nor weight can upset Timken economies.

Timken is *the one bearing that does all things well.* It is more than merely anti-friction. It is anti-wear, anti-depreciation, anti-attention and anti-excessive cost.

Cutting down power loss, reducing maintenance and adding years of the same low-cost service is the Timken performance that has put more Timkens to work in the oil fields than all other anti-friction types combined. Of course, only Timken can combine the Timken tapered construction, the Timken *POSITIVELY ALIGNED ROLLS* and the Timken-made steel that makes Timken economies possible.

THE TIMKEN ROLLER BEARING COMPANY
C A N T O N , O H I O

MEN KNOWN IN OILDOM

Silas M. Newton

Silas M. Newton, president of the Indiana Oil & Gas Corporation and elected president also of the Grayburg Oil Company, San Antonio, Tex., when Indiana recently took over a controlling interest in the latter concern, got his feet wet in the oil business in the Cushing Field in 1912 and 1913 and has been in it ever since. He graduated from Baylor University in Waco., Tex., and took a post-graduate course at Yale.

Mr. Newton has operated as an independent in Kansas, Oklahoma, Texas and, in the last year, in Indiana. In 1924 he acquired holdings in Venezuela and organized the American Controlled Oilfields, Inc., which owns extensive concessions in that country around Lake Maracaibo and Lake Venezuela. He is the largest stockholder in the company, although not an officer. He is the principal owner of the Texas National Oil Company, which has production in Brown and Coleman Counties, Texas, and is interested in production in Runnels County. He owns the Texana Oil & Refining Company, one of the largest independent oil companies in Texas.

Affiliation of the Indiana Oil and Gas Corporation, the Grayburg Oil Company and the Oil Operators Trust Company effected an organization with assets of $20,000,000 and with a complete cycle of operations. Mr. Newton will continue to live in New York, but the new combination of oil interests will receive much of his attention.

Outside of the oil business Mr. Newton's chief interest is in golf.

PERSONAL PARAGRAPHS

Noble Ward has returned to Petrolia, Ontario, from the Trinidad oil fields.

* * *

Frank Lawson, who has been drilling in Egypt, returned recently to Petrolia, Ontario.

* * *

Mr. and Mrs. William White have arrived in Petrolia, Ontario, on three months' furlough from Peru.

* * *

W. M. Coates, J. B. Sowell and J. R. Dugan, independent operators, of El Dorado, Ark., and J. E. Ratchford, have returned from Colorado Springs, Colo.

* * *

A. M. McCorkle, vice president in charge of refining for the Dixie Oil Company, at Shreveport, La., put in the past week in West Texas checking up on land matters.

M. N. Constantinescu, director of the Creditul Minier, Bucharest, is visiting London.

* * *

A. W. Peake, vice president of the Dixie Oil Company at Shreveport, La., and R. F. Bristol, auditor, are in New York.

* * *

Mr. and Mrs. Dalton Hinman and daughter have returned to Petrolia, Ontario, on furlough from the Peruvian fields.

* * *

W. F. Macdonald, managing director in Roumania of the Dacia Romano Petroleum Syndicate, Ltd., has returned to London on a brief visit.

* * *

W. R. Daugherty, auditor of the Southern Group of Pipe Lines, whose offices are at Oil City, Pa., spent several days in Pittsburgh, Pa., last week.

* * *

M. J. Grogan, president of the Louisiana Oil Refining Corporation, spent several days this week in Cincinnati looking over the company's Ohio business.

* * *

Julius Kobernick, of Engineering, Research & Equipment Company, who makes his headquarters in Dallas, Tex., spent most of last week in Tulsa.

* * *

George N. Moore, vice president and general manager of the Cosden Oil Company, Fort Worth, Tex., made a business trip to Chicago during the week.

* * *

Sir Edward Manville, chairman of the Phoenix Oil & Transport Company, Ltd., has returned to London from his annual visit to the Phoenix properties.

* * *

F. O. Prior, vice president of the Dixie Oil Company of Shreveport, La., in charge of production, and H. G. Snyder, chief geologist, were in Tulsa last week.

* * *

Elery B. Pool, of the land department for the Amerada Petroleum Corporation, San Angelo, Tex., was married on June 6 to Miss Rita Merck of Sonora, Tex.

* * *

Arthur Renaud, of the Marland Production Company's land department at Fort Worth, Tex., is making a trip to Beaumont, Tex., and parts in Louisiana on his vacation.

* * *

Adrian Moore, vice president and general manager of the Rycade Oil Corporation, Houston, Tex., made a short business trip to New Mexico where he looked over oil properties.

* * *

George Jaques, of Casper, Wyo., general superintendent of the Midland Refining Company, was in New Mexico during the week looking over the company's properties in that area.

* * *

W. C. Thomas, assistant general manager of the southwestern division of the Vacuum Oil Company, Houston, Tex., has returned from a trip over West Texas fields and into New Mexico.

* * *

Jack Hosterman, district geologist for the Amerada Petroleum Corporation at San Angelo, Tex., was in the Shreveport, La., district this week checking up on recent developments.

* * *

John R. Herr, manager of the southern district, Sinclair Refining Company, Houston, Tex., has returned to his desk following a short business trip to the New York offices of the company.

* * *

Dr. J. Th. Erb has resigned his seat on the board of directors of the Shell Transport & Trading Company, Ltd., and Robert I. Watson and J. B. Aug. Kessler have joined the directorate of the company.

* * *

George H. McIntyre and F. M. Jacobson, of the Marland Production Company, Fort Worth, Tex., made a business trip to West Texas during the week, having business in the Big Lake Field, Reagan County.

* * *

Prof. William M. Alberti, chief geologist for the Yucatan Petroleum Corporation with extensive holdings in Yucatan and Campeche, has arrived in Yucatan, where he will be in charge of operations for the Yucatan Petroleum Corporation.

B. T. McNeil, president of the Liberty Pipe Line Company, and petroleum marketer, Houston, Tex., has returned from a month's tour of the East which included such points as Washington, New York, Boston and Montreal.

* * *

Mr. and Mrs. Merle Volway have returned to Petrolia, Ontario from Borneo, where Mr. Volway has been connected with the Royal Dutch-Shell Company. They will spend a few months in Canada before returning to the East.

* * *

J. A. Neath, vice president and general superintendent of the Humble Pipe Line Company, Houston, Tex., has returned to his work following an overland trip to near Lima, Ohio, where he took his family for a summer vacation.

* * *

W. E. Whitcomb, in the land department of the California Company, San Angelo, Tex., and his brother, Bruce Whitcomb, of the geological department of the Cosden Oil Company, are spending their vacation at the Oso Fishing Club, Corpus Christi, Tex.

* * *

Charles C. Hall, vice president of Durametallic Corporation, manufacturers of packing, Kalamazoo, Mich., and Albert Gallman, secretary and treasurer of the same firm who makes his headquarters in Oklahoma City, Okla., were in Tulsa on business last week.

* * *

L. A. Wainright and Mrs. Wainright, who was formerly Miss Revel Williams, secretary to Jack Pew of the land department of the Sun Oil Company, Dallas, Tex., have returned from their honeymoon. Mr. Wainwright is with the Amerada Petroleum Corporation.

* * *

Rees H. Lemon, vice president of the Economy Pump & Oil Tool Company of Los Angeles, Calif., has returned home from a few weeks spent in the Mid-Continent Field with the company's salesman. Mr. Lemon visited his old home in Chautauqua County, Kansas, on this trip.

* * *

Dr. Van Holst Pellekaan, vice president of the Shell Petroleum Corporation, and E. G. Robinson, chief geologist, flew to Muskegon, Mich., to visit the Muskegon oil field. The trip from St. Louis, Mo., to Muskegon and back was made in the "Golden Shell," huge trimotor Fokker monoplane owned by the corporation.

* * *

Ralph Dodds, who has been scouting in the Panhandle district for a long time for the Gulf Production Company, has been transferred to Eastland, Tex., and will be assistant to the Gulf company agent there. A. A. Kelly who has been in the production and pipe line departments will take Mr. Dodd's place in the Panhandle.

* * *

Paul M. Raigorodsky, one of the organizers of the Engineering, Research & Equipment Company, has disposed of his interests in the company, and has announced his resignation as its secretary and treasurer effective June 3, 1929. Mr. Raigorodsky and Dr. Walter J. Podbielniak have become associated as consulting engineers.

* * *

H. Smith Clark, district geologist for the Sinclair Oil & Gas Company, Fort Worth, Tex., and Don Danvers of the same company at Seguin, Tex., made a trip through Alabama, Mississippi, and Tennessee with the Shreveport Geological Society. This was the seventh annual field trip for the organization. M. W. Grimm, district geologist for the Tidal Oil Company at Shreveport, La., was in charge.

* * *

M. J. Gavin, refinery engineer of the United States Bureau of Mines, with headquarters at the San Francisco office, has resigned to accept a position with the Foster Wheeler Corporation. Mr. Gavin was in the employ of the Government for 11 years, during which time he prepared numerous bulletins and technical papers on oil refining subjects. He also had charge of the design, construction, and operation of the Government's oil shale plant at Rifle, Colo. Mr. Gavin is at present in the New York office of the Foster Wheeler Corporation, but expects soon to return to California, where he will be in charge of the Los Angeles office.

80% OF CRUDE PRODUCED IN ARKANSAS HAS COME FROM SMACKOVER

Approximately 80 per cent of the crude that has been produced in Arkansas has come from the Smackover field. The discovery well was Van Cleve, Kronenberg & Freedman's Richardson 1, located in section 29-15-15, Ouachita County. It came in about August 1, 1922, having penetrated 18 feet into the oil sand to a total depth of 2066 feet. The crude tested 22 degrees Baume. It was not until about three weeks later, however, that the well was completed as a steadily flowing well, at which time the initial production was was given as 1000 barrels. Smackover's peak production year was 1925, during which time the output was 74,383,000 barrels. In 1928 the field produced 24,747,000 barrels, and at the end of that year the grand total of production had reached 259,878,000 barrels.

The expansion of the great plant and organization behind Hughes Tools has been thoroughly in keeping with the rapid growth and demands of the industry.

Hughes Rock Bits, Tool Joints, Drilling Valves, and Core Bits are ready for prompt shipment when new fields open up.

HUGHES TOOLS
—Sold by Supply Stores Everywhere.

HUGHES TOOL COMPANY

Service Plants
Los Angeles, Calif.
Oklahoma City, Okla.

Main Office and Plant
HOUSTON,
TEXAS

Export Office
Woolworth Bldg.
New York City

Refiners with only skimming plants are having a hard time trying to make their gasoline carry the total cost of operation With the present market situation fuel oil, as such, contributes practically nothing to the profits of a refinery The refiner with a cracking process limited to gas oil as charging stock has the same problem because he too produces more fuel oil than he

wants in obtaining the gasoline he needs

Licensees of the Dubbs Cracking Process, operating by the non-residuum method, have no fuel oil They crack it into good gasoline

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

"Without a single dollar's expense, our 6-inch 'Rapiduction' has kept threading steadily for months"—

—is what one well-known producer writes about his WILLIAMS "Rapiduction," to another threading machine user. Let us send you this, and others—

REPORTS FROM USERS, showing how they are getting *three times faster threading* with their WILLIAMS "Rapiduction" Machines.

The "Rapiduction," besides being extremely sturdy, has many time-saving features that you will like—

For instance, *only one die-head* covers the entire threading range of the machine—a big saving in set-up time.

And it has a wide range of spindle speeds, so that your operator can instantly get the *exactly right* speed for each size pipe to be threaded—giving the machine's *maximum* production on that size.

Will be glad to send you our bulletin "O," with full description and specifications on the WILLIAMS "Rapiduction" Pipe Threading Machine.

WILLIAMS TOOL CORP.
Erie, Pa.

Besides the bigger threading output, you get the economy of *lower cost dies.*

A complete set of high-speed steel dies for the 12-inch Rapiduction Machine weighs only 8 lbs., as against 144 lbs. of big dies on an ordinary machine of the same size.

And if you snip one die, you replace only that one, without touching any other die in the head.

WILLIAMS RAPIDUCTION

REVIVAL OF DRILLING IN OLD OIL FIELDS

(Continued from Page 42)

the southeast quarter of Survey 467, about 7 miles northwest of the town of Graham. It came in making around 350 bbls. daily from a total depth of 4,283 feet in the lime.

And a well which is quite phenomenal in the fact that it has been producing since 1921, flowing naturally with a string of tools and some collapsed casing in the hole and 600 feet of open hole, is the Casey No. 1 Mercier in the P. Vivian Survey, about 5 miles north of Graham.

Picture of old Casey-Mercier No. 1 Jeffrey which topped the pay at 3,912 feet, and was completed at 3,995 feet in June, 1921. This is approximately 4 miles north of the town of Graham, in Young County.

Total depth of this well is 4,119 feet. One-half mile to the northeast of this discovery is the old Monroe test which was abandoned at 4,113 feet as a dry hole.

The Casey No. 1 Mercier topped the Ranger lime at 3,912 feet, and encountered 41.5 gravity oil, which has been run by the Prairie Pipe Line Co. Accompanying photograph shows this well, flow tanks and connections.

The Clarco Oil & Refining Co. of Fort Worth, Tex., is drilling a test 1,400 feet due south of the above named well, located in Survey 3,413 on the Morgan estate. It expects to pick up at least one of the three lime pays which run from around 2,100 to 2,300 feet, 2,800 to 3,400 feet, and 3,900 to 4,000 feet. The Ranger sand runs below these from around 4,200 to 4,300 feet in this area. The Clarco company has an 800-acre block around this new test it is drilling.

The latest showing made in the area was in the Pandem Oil Co.'s No. 1 Burch in T.E.&L. Survey, 5 miles northwest, almost due west of Graham. Around May 26 the test encountered a porous lime at 4,248 feet and at 4,250 feet it was shut down with 660 feet of oil in the hole making two flows shortly after shutting down.

Stephens and Palo Pinto Counties

Another interesting area in the same part of the district as the Graham area, lies several miles south of Graham over the Young County line in Stephens and Palo Pinto Counties.

The latest event of major importance was the encountering of a heavy gas sand in the Ashe Syndicate's No. 1 Hart in the SE cor., Section 29, Block 3, T.&P. Survey, Palo Pinto County. The Ranger sand was thought to be extended by this strike, when sand was struck at 3,943-43½ feet, being shut down at 3,943½ feet making 10,200,000 feet of gas, and spraying an estimated 50 bbls. of oil.

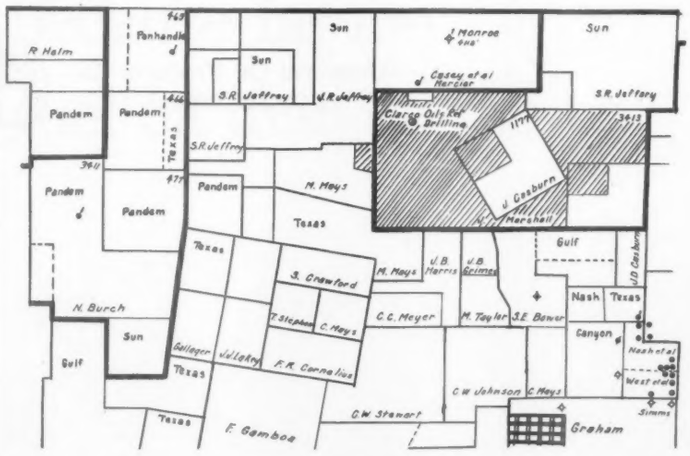
Three and a half miles south of this new gas well, L. L. Lindsay and others are cleaning out their Nos. 1 and 2 Robinson in Section 53, with intentions of shooting.

No. 1 Robinson has been producing gas for about a year, from the Strawn sand at 1,479 feet. Total depth of the well is 1,535 feet. It had an initial production of 1,000,000 feet of gas with 450 pounds rock pressure, and has been producing this amount for the year. This well is to be shot from 1,402 to 1,424 feet with 15 quarts.

No. 2 Robinson encountered the Strawn sand at 1,502 feet and was shut down at 1,535 feet spraying oil. This is to be shot now with 5 quarts from 1,402 to 1,422 feet for a try to better the production.

The Mutual Oil Co.'s No. 1 Robinson which produced gas and oil for a short time from a total depth of 1,355 feet, lies immediately between the Lindsay Nos. 1 and 2 Robinson, but this small producer has been plugged for some time.

The nearest producer to these gas wells is the Texas Pacific Coal & Oil Co.'s

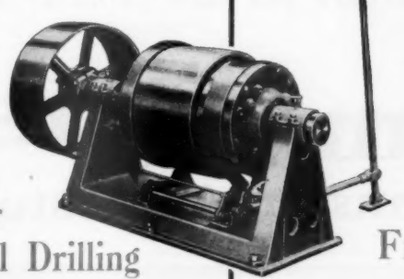


Graham area.

Franklin Valveless Oil and Gas Engines

Some of the Franklin OF Good Points

Enclosed type.
Simplicity.
Low fuel consumption.
No special tools required.
No special threads used.
Extremely heavy crank.
Counterbalance on crank.
Hollow crosshead pin fitted with crosshead on a taper.
Metallic Packing on piston rod.
Removable shells in all bearings.
Very accessible.
Steel crosshead with adjustable bronze shoes.
Piston rod flanged and bolted to piston.
Air cooled piston.
Cylinder head jacket easily cleaned.
Cylinder has three point force feed lubrication.
Most economical to operate in fuel, lubricant, water and repairs.
Easy starting.
Least number of parts.



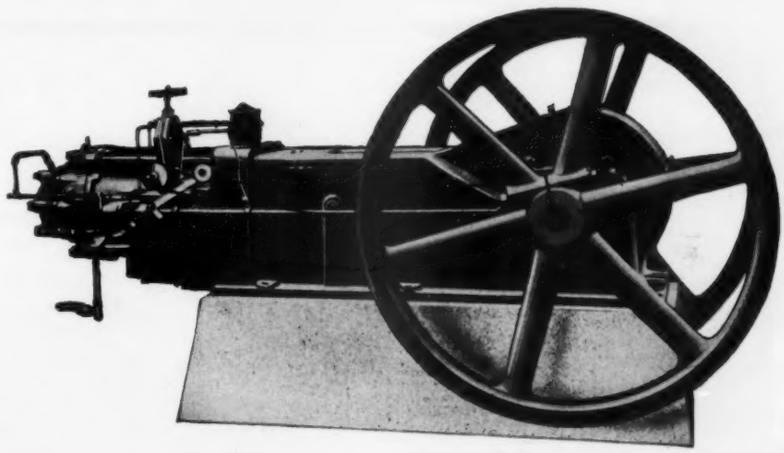
Type BG Clutch for Cable Tool Drilling or Pumping

A vast improvement over the former type of clutches.

Driven from pulley on engine. Permits the use of a larger diameter pulley and makes possible a slower clutch speed. Operates by hand lever on derrick.

Construction and design prevent Reverse Clutch Troubles.

PRICE—$1200.00 F.O.B. Franklin, Penna.



The A.P.I. Demanded Standardization Franklin Engines Give It

We believe standardization means economy—in both money and effort.

In the new and improved Franklin Oil Engine, identified as Type OF, each of its three sizes are made interchangeable as to foundation. Finish with the drilling engine—then move in the smaller pumper without changing so much as a bolt hole.

All Franklin Valveless 16″ stroke engines are interchangeable on the same block.

No loss of time, expense of new block or trouble. Practical economy for the operator—sufficient certainty to specify to the drilling contractor that he drill with a Franklin.

Even without this feature, advantageous as it is, the Franklin Valveless Engine stands as an achievement in performance, simplicity and economy. Operators who have seen this new type OF believe it to be an unusual advance in Internal Combustion Engines.

Where gas as fuel is available, specify Type OG. Incidentally, the OF Engine is readily converted into this OG type at very little trouble or expense.

Franklin Valveless Engine Company
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ARE widely used for all types of cooling and condensing service. Their automatic scale-shedding feature, high salvage value, flexible capacity, interchangeability, and long life are some of the many advantages that have made them popular in natural gasoline plants and refineries.

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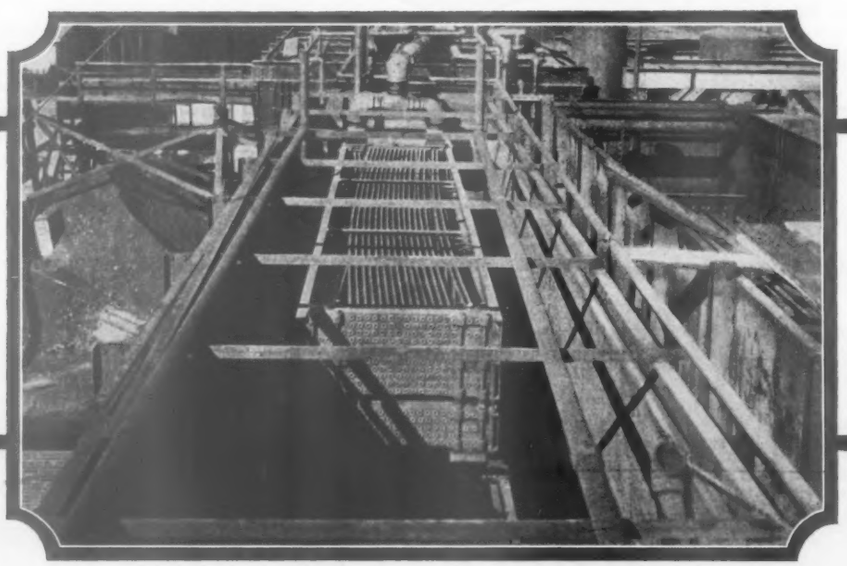

well in the northwest part of the NE. Section 55, Block 3, T.&P. Survey. This well had an initial production of 350 bbls.

In Hohertz Pool

The Hohertz Pool lies 3 miles south of the Lindsay wells. This well has been producing about 12 years, having been discovered by the Texas Pacific Coal & Oil Co., and the production practically all being owned by that company. Production in this pool comes from around 1,600 feet, and some of the wells produced as high as 1,400 bbls. daily. There were three leases in this pool, known as the Stuart, Hohertz and Binney, the Texas Pacific company owning the majority of production and acreage under the three leases. The Hart Pool is 7½ miles north of Hohertz Pool. It produced from the Caddo and Ranger limes between 3,900 and 4,000 feet, producing mostly gas, but some oil.

The Rockmill and others' No. 2 Slemmons, 1 mile north of the gas wells which Lindsay is rehabilitating, is a deep producer of oil and gas, total depth being 3,400 feet. This test passed up the shallow pay from which the Lindsay wells are getting production, and went down to the deeper pay, producing for several years from that strata.

About 13 miles northeast, a new pool has been opened up near the town of Pickwick. This pool is producing from same formation as Hohertz Pool, and Lindsay wells. The Upham Gas Co. owns the discovery well on the Wester ranch in this new pool. Pay was encountered around 1,350 feet, and 13,000,000 feet of gas is being produced. Contracts have been let for six tests in this new area.

All this territory is in mountainous country, the topographic elevations causing a great difference in depths of wells producing from same pays. The surface geology is worked on the Palo Pinto lime, and erosion causes the surface geology to be more or less hypothetical, and therefore subsurface geology has been used almost exclusively to study this area.

The Pickwick Pool, being on the same trend as the Hohertz, Lindsay and Hart production, apparently has opened up a large territory between the producers, and many interesting tests will undoubtedly be made seeking the Strawn pay sand.

East Caddo Field

The accompanying map shows the East Caddo Field in which the Sinclair Oil & Gas Co. brought in a big producer in Section 42, Block 4, T.&P. Survey, in 1918. This well, it is understood, has produced over $5,000,000 worth of oil, being the best well in that field. Total depth is 3,240 feet. It came in making 5,020 bbls. daily, but was abandoned last year.

The T. G. Shaw Oil Co. drilled a test in the same section, 400 feet from the west line and 1,440 feet from the north line. May 15 it encountered pay at 3,121 feet and shut it down at 3,299 feet, estimating the production at 2,300 bbls. daily. On May 30 the well was shot with 180 quarts from 3,245-99 feet to break up the compacted lime, in order to get steady production, the well flowing intermittently before the shot. The hole bridged and at present they are drilling out the bridge. The Prairie Pipe Line Co. is taking the production from this new well, the gravity running 42 degrees.

GREAT ADVANTAGES IN HANDLING BIG GAS WELLS

(Continued from Page 84)

bite. The construction of the dogs which grip the pipe is such as to prevent crimping or bending the pipe under the extreme pressures encountered.

Fast Work in Hard Jobs

The equipment just described, which will be described in more detail by Mr. Otis in a paper before the American Petroleum Institute next December, was of inestimable value to Richland operators in three instances occurring during the last six weeks. During this time two large wells that had been completed for some time started to crater and a third indicated casing trouble by a sudden high pressure between strings. In the first instance, the well was turned over to the Southern States Co. at 10 o'clock at night. The crew and equipment at that time were in Shreveport, 125 miles away. By 10 o'clock the next night the equipment had been moved to the location, tubing snubbed into the well, mud mixed and pumped in through the tubing and the well killed, all within 24 hours.

In the case of the second well, which started to crater, the crew was at work on a well 30 miles away when called upon by the State Department of Conservation at 4 o'clock in the afternoon. At 6 o'clock they were setting up on the new location, having torn down and moved the 30 miles during the two hours. In the meantime, gravel, under the direction of the department, was being dumped into the crater to stop its further spreading. Floodlights enabled the crew to raise their gin poles and set up their control equipment. Tubing was not delivered until the next morning, but before midnight had been snubbed in against more than 1,000 pounds pressure and landed on bottom. From this point on the killing of the well with its 60,000,000 feet was a simple matter, it being necessary to run the pumps only 22 minutes.

In the third case tubing was similarly snubbed in against 1,050 pounds and the well killed in 20 minutes after the pipe was landed on bottom. The crew of the Southern States company, as well as its owners, are to be congratulated for their successful handling of these three dangerous wells in a typical crater field. Had this equipment been available a year ago it is practically certain that the two craters existing in the field today could have been avoided.

Another application of this equipment will be of equal interest to oil producers. The owners claim that with it they can install tubing in flowing wells regardless of its production without losing a barrel of oil or disturbing the feeding of the well in any way. A further application permits the plugging and pulling of tubing in a flowing well with no loss of production. This means that when necessary to maintain the desired oil and gas ratio the size tubing in a flowing well can be changed at will with no loss of production and with the well under full control at all times. In cases of deep production, where it is important that every foot of gas be utilized, this feature should be of considerable value and importance.

HEARING ON EXTENDING PRORATION IN YATES

FORT WORTH, Tex., June 15.—Notice has been given companies operating in the Yates Pool, all royalty owners of interest in the production of crude petroleum and natural gas in that field, and to all parties having any interest whatsoever therein, that the Railroad Commission will consider the adoption of rules and regulations deemed necessary to prevent waste and conserve the natural resources of crude petroleum and natural gas in the Yates Field. The meeting will be held at 9 a. m. at the Texas Hotel in Fort Worth, June 25.

The Railroad Commission will hear all testimony and suggestions of all parties at interest and will then determine whether or not proration shall be extended in the field on and after July 1, 1929, and if so extended, for what period, and, in case the Railroad Commission determines proration shall be continued after that date, it will also fix the allowable daily outlet of the field.

NEW CRUDE TARIFF

OIL CITY, Pa., June 15.—The National Transit Co. today posted a new tariff for the gathering of crude oil in the Pennsylvania producing fields. The new rate is 35 cents a barrel, a reduction of 5 cents from the present rate, and is effective July 1.

Dearborn

Special 134

Stop Paying SCALE

Scale in water lines, condensers, evaporators, valves, meters and in engine cooling jackets is removed rapidly, thoroughly and at small cost with Dearborn Special 134. It is easy to use and will clean out any thickness of scale. Proven in many years of use.

Scale in oil field boilers as well as pitting and corrosion is controlled easily by Dearborn Scientific Treatment. Sample of water supply is needed for laboratory analysis. A suitable treatment is then supplied, low in cost and 100% in results.

Dearborn Cleaners Do a Real Job

Dearborn Cleaner No. 7

For opening drains.
For cleaning caked and extra dirty concrete floors.

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For general service in removing oil, grease and dirt from all types of oil field equipment.

For cleaning oil and dirt from overalls and clothing.
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Dearboline, a non-explosive liquid cleaner that gives surprising results on metal surfaces.

Get acquainted with the entire group of Dearborn Products. Write now. Tell us your needs and we will make the sort of recommendations to aid you that have taken the name Dearborn proudly to every corner of the earth.

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for strength ~ permanence

FIRST to perfect the structural steel derrick; first to galvanize it against rust and corrosion; first to introduce the reenforced feature—through careful designing and the highest type of engineering skill, International has incorporated and produced in the IDECO Structural Steel Derrick inherent values that make it unquestionably the strongest yet the lightest and most practical derrick on the market today.

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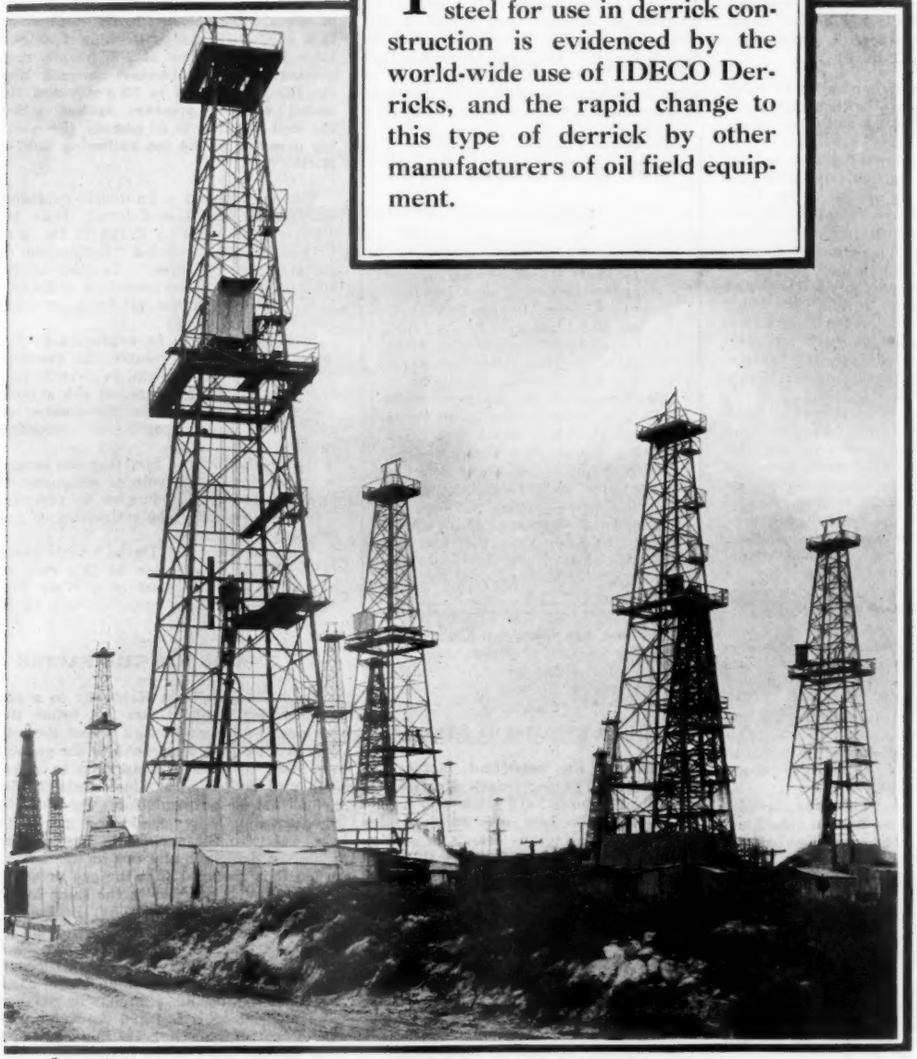
THE superiority of structural steel for use in derrick construction is evidenced by the world-wide use of IDECO Derricks, and the rapid change to this type of derrick by other manufacturers of oil field equipment.



THE material and workmanship is of the highest quality. Every brace, every girt, every bolt and rivet is conceived to perform a duty, yet no place is the shearing value of a bolt or rivet a determining factor in the structure. Every joint is a positive connection. There are no friction joints or special bolts or fastenings.

Strong, safe, light in weight; easy to erect and dismantle; there is nothing left to be desired in an IDECO Steel Derrick. Heavily galvanized, rust and the weather cannot eat away its strength. Its light weight and minimum of parts makes it easy to move.

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442-D

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

PARAFFIN IN THE PANHANDLE

Please tell me the best way to overcome the paraffin trouble in the Panhandle. Trouble is being experienced in a pumping well in keeping it free of congealed paraffin that is making it difficult to pull rods. We are now using steam to remove the paraffin but would like to know if there is some chemical that could be poured into the tubing and do a better job in an economical way.—F. C. F.

Answering your last question first, it is found that kerosene has been used as a solvent for paraffin with some success in the Panhandle area. This kerosene was run into the well hot and it required from two to six drums for each treatment or wash.

In the May 12, 1927, issue of The Oil and Gas Journal there is an article by C. E. Reistle, Jr., entitled "Removing Paraffin from Wells" and there is another full description of a tool designed for this purpose by Marland Oil Co. engineers in an article written by E. O. Bennett and K. C. Sclater and presented before the A.I.M.E. meeting.

The United States Bureau of Mines has issued technical paper Serial No. 2,550, December 1923, by R. Van A. Mills on "Paraffin Problems in Oil Wells."

Other articles have appeared in The Oil and Gas Journal under dates of October 20, 1927, "Handling Congealing Oil and Paraffin Problems in the Appalachian Fields," by F. M. Brewster; November 3, 1927, "Claims Process Will Clean Sand of Paraffin"; December 2, 1926, "Paraffin Cutter Made for Use in Wells in Texas Panhandle"; May 12, 1927, "Methods and Tools for Removing Paraffin from Wells," C. E. Reistle, published by the United States Bureau of Mines under Serial No. 2,802; October 20, 1927, "Summary of Information on Handling Congealing Oil and Paraffins"; and October 20, 1927, "Problems Encountered in Handling Panhandle Crude," W. V. Vietti and W. A. Oberlin.

WANTS TO BE A GEOLOGIST

Could you advise me of some means of getting practical experience in oil geology, as I know nothing of this subject, and do not wish to study geology generally, but specifically oil geology? Could you give me some advice about how to get work where I could learn this profession?—M. R. F.

It would be almost impossible to study one branch of geology without having a good general knowledge of the whole science.

You can read interesting and helpful books that deal particularly with the science of geology as applied to the finding of oil and gas, but these books are elementary in their nature and would not prepare one to follow the profession.

Just at this time the science of geology is becoming increasingly complicated and within the profession itself it is being subdivided into special departments such as geophysical work, paleontology, geothermial study of underground waters, water analysis and several other highly specialized divisions.

The groundwork for following such sciences requires a college education, and it is suggested that if you seriously contemplate taking up this work you talk the matter over with someone who can advise you on educational matters and direct you to some university or college near your home where you can take, perhaps, some form of extension course that will fit you to go further into the general studies that form the groundwork of good geological education.

The profession is too complicated and too highly specialized for you to hope to get into it in any practical way and study while working at it, although you might get employment near a college specializing in petroleum engineering and be able to take that course, working during vacation periods in the oil fields to gain experience and money to pursue your education.

You may find the following articles which appeared in The Oil and Gas Journal interesting: "Schools Perfecting Petroleum Courses," November 1, 1928; "College Diploma Just the Begnining," December 20, 1928; and "Breaking in the Petroleum Engineer," April 18, 1929.

WHAT'S AHEAD OF THE DRILL?

Can you give me any information relative to the instruments designed for location of oil ahead of the drill, such as geophysical instruments that are written up occasionally?—T. C. A.

Before answering the above question let us restate part of it, for according to geologists "location of oil ahead of the drill" is impossible at this time. The question might better be changed to read, "location of possible oil-bearing structures" and this is being done with instruments including the electrical, magnetic, gravity and seismic methods. Each of these methods is represented by such instruments as the geophone, magnetometer, torsion balance and seismograph respectively, with many variations.

The principal use for any of the instruments is to find "structure," that is difference in the formations underground that might indicate a place where oil or gas has collected. When such a structure has been mapped, using any of the above methods, the next thing necessary is to drill into it to determine whether it contains oil or gas in commercial quantities. And until the drill actually penetrates into the strata which it is believed may contain oil or gas, and finds it, all work is purely prospective.

The advantage of geophysical prospecting is that it indicates where not to drill rather than to determine the presence of oil or gas, for if there is no structure developed by geophysical methods it is very safe to decide not to drill in that particular area.

Numerous articles have appeared in The Oil and Gas Journal. One written by Andrew M. Rowley, and published December 1, 1927, "Employ Science in Search for Oil," you probably would find especially interesting, as it explains in simple language the operating of geophysical instruments. The American Institute of Mining and Metallurgical Engineers has prepared a volume of papers and discussions of all methods which is of value to those interested in technical details.

WHY IS IT CALLED THAT?

PENCIL CAVE

"Pencil Cave" is the name given to the shale which in some places separates the Greenbrier limestone into two layers, known familiarly as the Big Lime and Little Lime. In Ohio, Pennsylvania and West Virginia the Greenbrier limestone, or Big Lime, is one of the most readily identified markers from which to estimate depths to lower sands. The shale which sometimes divides it into two strata, necessitating the distinguishing designations "Big" and "Little," has come to be known among drillers as "Pencil Cave" because of its disposition to cave into the hole in pencil-shaped fragments during drilling.

PROPER LENGTH OF STROKE

What are the important factors influencing the proper length of stroke in an oil well pump? I wish you would tell me too the best way to determine the most advantageous length of stroke. There seem to be a great many things to be considered. I often hear it said that the longer the stroke the better, but I am doubtful about the truth of this statement.—E. G. S.

Many factors and considerations enter into this problem. Among these may be enumerated:

1. Length of working barrel.
2. Capacity of well.
3. Amount of fluid to be pumped.
4. Relative productions on different strokes.
5. Relative lift costs for different strokes.
6. Mechanical equipment on surface.
7. Depth of well.
8. Volumetric and mechanical efficiency resulting from different lengths of stroke.
9. Relative service of sucker rods when used on different strokes.
10. Comparison of emulsion troubles for different lengths of stroke.

Such points as these must be considered in determining the best length of stroke. It is often stated that the longer the stroke the better, but this does not always hold true. There is often some length of stroke beyond which any increase results in lessening the volumetric efficiency of the pump. The most advantageous length of stroke therefore can be determined partly by trial and partly by calculation to meet the requirements in any particular case. As a rule, however, the length of stroke is limited by the type of equipment in use, regardless of what length of stroke might be the most advantageous if it could be used.

ESTIMATING VALUE OF GAS

In fixing inventory values of proven gas territory in West Virginia what should be the estimated value per 1,000,000 cubic feet open flow for a new well on 50 acres (assuming that this amount of acreage will be eventually drained by this one well) that will make 1,000,000 cubic feet open flow at 500 pounds rock pressure, if it is further assumed that the life of the well is 15 years and the lowest working pressure against which the well can flow is 50 pounds, the working pressure in the gas gathering line?—R. W. T.

You are referred to an article published in The Oil and Gas Journal, June 16, 1927, and prepared by Ralph E. Davis of Pittsburgh, Pa., entitled "Estimation of Natural Gas Reserves." In that article it is pointed out that according to Boyle's Law, PV=a constant (P being pressure and V being volume).

Boyle's Law may be expressed as follows: "In a given volume, the quantity of gas present, by weight, is directly proportional to the pressure, or the greater the pressure the greater the amount of gas present, other conditions remaining equal."

Recognition of the fact that the escape of gas from a reservoir is accompanied by a proportional reduction in pressure forms the basis for the estimation of gas reserves underground.

Accompanying Mr. Davis' article there is a graphic illustration of this rule as applied to the appraisal of a West Virginia gas field that probably will be of interest to you.

VOLUME OF GAS THE FACTOR

In drilling wells in Kentucky to a gas sand which is about 500 feet below the surface, water was found above the gas and in one 6-inch diameter hole the gas did not clear the hole of water, but in a second well drilled with 3-inch tools it was found that the gas could force the water to the surface. Why should the gas raise the water to the surface in the smaller diameter drill hole and not in the larger, when it is assumed that the gas pressure in the sand is practically the same in all parts of the formation?—W. S. L.

This condition is somewhat like that set up in a well produced first through the casing. When it will no longer flow through the casing a string of smaller diameter tubing is run and the well again flows naturally. In both this case and the one you describe the proportion of gas to oil or water lifted is the determining factor. When the gas-oil ratio falls below a certain point the forces stored in the gas no longer can lift the large volume of oil or water they had been expelling.

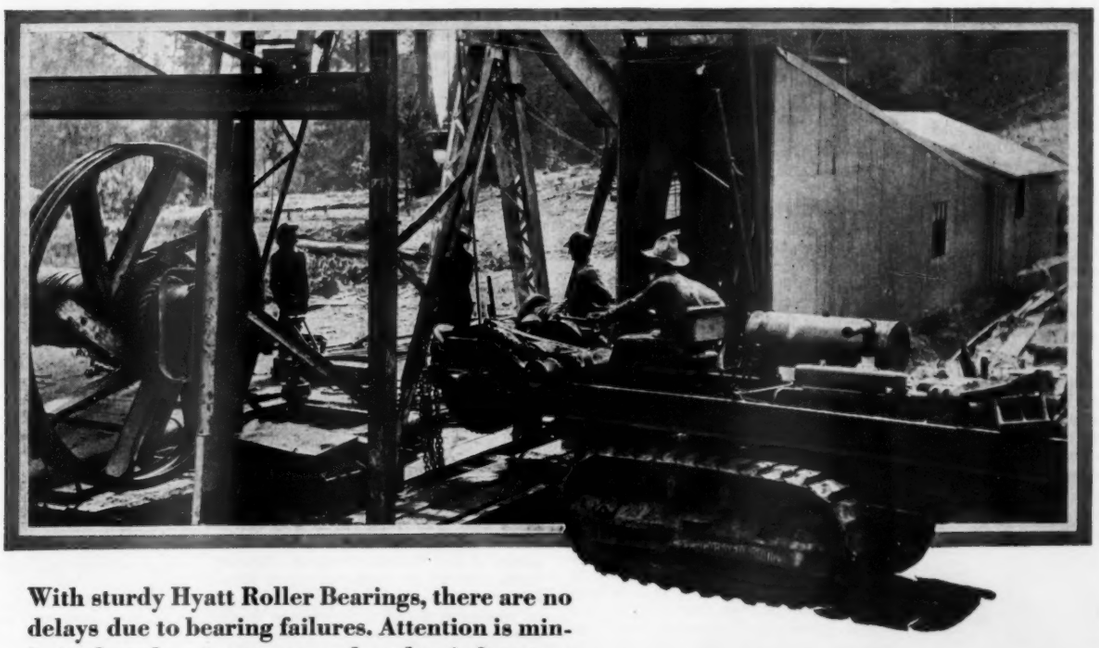
In your case the gas volume, not pressure, was the determining factor, and in the 6-inch hole there was not enough gas to develop the energy required to raise the water to the surface because the water in the 6-inch pipe amounted to about 1.5 gallons per foot of length, while in the 3-inch pipe it weighed only .3672 gallons per foot. In the first case 500 feet of pipe filled with water would weigh about 6,250 pounds, while water in the 3-inch pipe would weigh only about 1,530 pounds. Therefore the work to be done in lifting the smaller body of water to the surface is less than that required to lift the water in the 6-inch pipe.

Such factors as slippage, velocity of discharge, and others that might be required to give exact results have been disregarded as the general principles involved in the mechanics of your problem can be stated without considering those factors.

ON this installation, both winch and tractor are Hyattized for the same reasons: uninterrupted performance . . . unfaltering endurance . . . long life!

Oil field equipment must be ready for steady service every hour of the day . . . and it invariably is when dependable Hyatts are employed. Year after year these better bearings meet unusual assignments with unfailing regularity.

Cardwell-Keltner Winches *are* Hyatt Protected



Cardwell-Keltner Winch, built by the Allsteel Products Manufacturing Co., Wichita, Kansas, and "Caterpillar" Thirty Tractor, on the property of the Pure Oil Company, El Dorado, Arkansas. Both winch and tractor are Hyatt protected.

With sturdy Hyatt Roller Bearings, there are no delays due to bearing failures. Attention is minimized, and maintenance reduced to infrequent lubrications.

Because Hyatts always do their work with unwavering satisfaction they are the preferred bearing for the majority of oil well equipment.

Many operators have already modernized their properties by adopting Hyatt Roller Bearings for all their equipment. Why not safeguard your investment by specifying Hyatts for all the machinery you purchase.

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PRODUCT OF GENERAL MOTORS

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

AVIATION GASOLINE

I should like to have you tell me which of the following gasolines are the best for airplane purposes? I should like your early reply as well as any other information on fuel and oil specifications for airplane use?—W. H. R.

The quality of three gasolines, as given, is stated in brief form in the table following:

Sample Number	1 (°F.)	2 (°F.)	3 (°F.)
Initial	104	82	90
5 per cent	138	108	120
20 per cent	164	136	146
50 per cent	200	182	188
90 per cent	264	300	310
95 per cent	280	356	364
Max. per cent	312	380	382
Loss per cent	⅝	2	1

The Federal specifications for aviation gasoline, fighting grade, and the domestic grade are shown, for distilling range, in the next table.

	Fighting (°F.)	Domestic (°F.)
5 per cent	122/149	122/167
50 per cent	203	221
90 per cent	257	311
96 per cent	302	347
Max. per cent	329	374
Loss per cent	2	2

As the specification for both grades requires a minimum temperature of 122 degrees Fahrenheit at the 5 per cent point, it appears that samples 2 and 3 fail. All samples seem to have met the 50 per cent point specification for both grades. All fail at the 90 per cent point for the fighting grade, but all pass at this percentage off for the domestic grade. Samples 2 and 3 fail at the 96 per cent point and endpoint for both grades.

The conclusion is that these gasolines fail to meet the standard specifications for either fighting grade or domestic grade aviation gasoline. As to which is the best of the three gasolines, it would appear, in the absence of all details concerning quality, that the question would have to be answered by a performance test.

You will find reliable specifications for the common petroleum products in Technical Paper 323B, Bureau of Mines. It may be obtained upon the payment of 15 cents from the Superintendent of Documents, Washington, D. C.

CRANKCASE DRAININGS

At this time we are disposing in various ways of the crankcase drainings from approximately 200 stations. Will you please advise me what you find is beind done with this commodity in a commercial way? Is there any suitable reclamation machine on the market? Is there sales resistance to the use of refined crankcase drainings? Can you acquaint me with any figure of cost per gallon provided this commodity does not have a cost upon it in its raw state?—J. M. G.

The following have appeared on this subject in The Oil and Gas Journal in this department under the titles and dates listed. Composition of Crankcase Oil, 7/12/28. Determination of Crankcase Dilution, 7/21/27. Disposal of Crankcase Oil, 1/3/29. Removing Acid from Recovered Crankcase Oil, 12/27/28. Refining Crankcase Oil, 1/17/29. Reclaiming Oil by Centrifuging, 5/24/28. Literature About Reclaiming Used Oil, 4/5/28.

There are a number of ways and various kinds of apparatus by which it is claimed good lubricating oil may be recovered from crankcase drainings. In general it appears that a process suitable for all grades of crankcase drainings must include preliminary straining or filtering and settling for the purpose of removing water, mud, metal, and any substance that may be in the nature of a sediment or suspended material. The next step is to remove all of the more volatile liquid and of course this requires some sort of distilling unit. The condensate is then neutralized and treated as the condition may require. The final step is usually a filter treatment, preferably through a good grade of fuller's earth.

There is some sales resistance when endeavoring to sell a recovered oil in competition with that made by a reliable refiner. The cost for recovering a commercial grade of lubricating oil from crankcase drainings may vary between five and twenty cents a gallon.

VISCOSITY AND TEMPERATURE

Some time ago The Oil and Gas Journal published an article, with a chart, for converting viscosities at one temperature to other temperatures. Can you locate this for me?—J. W. A.

The diagram showing the change of Saybolt viscosity with temperature was published in an article entitled Viscosity and Temperature Changes, in the December 2, 1926, issue of The Oil and Gas Journal, page 146, by Winslow H. Herschel, by permission of the Director of the National Bureau of Standards of the United States Department of Commerce.

The Saybolt Viscosimeter is the standard instrument in the United States for determining the viscosity of petroleum oils. In general, the Saybolt Universal is used for lubricating oils and the Saybolt Furol for fuel oils and oils of similar viscosity, the two instruments being conveniently constructed as a single instrument with interchangeable outlet tubes. The instrument has been thoroughly standardized by the American Society for Testing Materials.

The standard temperatures of test are 100 degrees, 130 degrees and 210 degrees Fahrenheit for the Saybolt Universal and 122 degrees Fahrenheit for the Saybolt Furol, but it is often desired to estimate the viscosity at one temperature when it is known at another. The relation between viscosity and temperature is complex and calculations are laborious, but a method has been developed for constructing a diagram so that lines showing the change in viscosity with temperature will be straight. Viscosities on the diagram are expressed in seconds, Saybolt Universal. Viscosities in seconds, Saybolt Furol are roughly one-tenth as great, the ratio of times of flow of the two instruments, however, varying slightly with the viscosity, as indicated by tables given in Report of the Committee on Viscosity Standards, American Petroleum Institute, 1922-1924.

If the viscosity of an oil is known at two temperatures, viscosities at other temperatures may be found with great facility from the diagram, by connecting with a straight line the two points on the diagram corresponding to the two known viscosities. If the viscosity is known at only one temperature, it is necessary to estimate the slope of the viscosity-temperature graph, i.e., the line on the diagram showing the change in viscosity with temperature for the oil under consideration. It is known that for all oils refined from a certain crude, the graphs will be approximately parallel. However, a series of graphs for oils of another crude will have another slope. In order to facilitate the estimation of the slope of the graphs, an auxiliary scale has been provided near the lower left-hand corner of the diagram. This is divided into four sections, for four different crudes, and is graduated in seconds, Saybolt Universal at 210 degrees Fahrenheit.

SULPHUR FROM GAS REFERENCE

In the May 16 issue of The Oil and Gas Journal I note in your reply to a question concerning sulphur removal from gases that you refer to a process described in the 28th Report of the Committee of Gas Manufacturers in Germany. Could you tell us where we might obtain this report as we are much interested in reading a detailed description of this sulphur removal process?—C. O. A. and others.

The process which was mentioned is in operation on a large scale in the plant of the I. G. Farbenindustrie, A. G., at Leuna-Merseberg, under patents which are owned by them. The Leuna plant is reported to have a capacity of over 175,000,000 cubic feet of gas each day, which contains 0.3 grams of sulphur per cubic meter. The sulphur obtained is of good yellow color and is marketed in the lump form.

You may obtain detailed information about the process from the I. G. Farbenindustrie, A. G., at Leuna or from the Committee of Gas Manufacturers, Berlin, Germany.

HOT OIL PUMPING AND GEARS

We would very much appreciate it if you could give us the names of any text-books in the United States dealing with the subject of hot oil pumping; also any books dealing with synchronizing gear for direct acting pumps to work as duplex or single line pumps?—U. O. C.

You will find information about pumps, also about gears, in the standard handbooks on engineering. The Worthington Pump Handbook, published by Worthington Pump and Machinery Corp., New York, contains some discussion on the subject of hot oil pumping. There is much theoretical and very practical information on gears in Practical Treatise on Gearing, published by Brown and Sharpe Manufacturing Co., Providence, R. I.

COOLING AIRCRAFT ENGINES

When operating an airplane where the temperature is low difficulty is experienced in finding a suitable cooling medium for the engine. Can you refer me to any experiments with special solutions for this purpose?—S. K. P.

Numerous experiments have been made with water cooled engines and some advantage has been gained by the use of the antifreeze substances which are commonly used in automobiles. The Navy Department at Philadelphia has been investigating a new type of internal combustion engine designed for aircraft use and this work has included a study of the fuels, lubricants, and cooling mediums.

A recent press announcement concerning this work was made in connection with a statement made public on the work of the Aeronautical Laboratory on the new engine and "Prestone" (ethylene glycol) developed as a successful antifreeze solution. The new type of engine, it was stated, will be more compact and rugged than the old water-cooled type, will consume less gasoline, and be adapted for use in all types of internal combustion engine service.

Discussing the matter of lubricants the Navy's statement said:

"Rigid specifications for the lubricating oils must be followed, otherwise scoring of the cylinders and frozen pistons will result. Various oil companies have offered their co-operation to the Navy, and this difficulty is about solved. Another serious difficulty arose from the fact that gasolines suitable for use in a water-cooled engine detonated very badly when used with the new coolant.

"Various refiners of aircraft engine fuel are co-operating with the Navy on this point also, and new fuels are already being tested. Preliminary results are very satisfactory and indicate that not only can the high temperature cooling system be safely used but that it may even be possible to increase the compression ratio of this engine, thus increasing the efficiency and decreasing the fuel consumption. Announcement of these results will be made at a later date."

ICHTHYOL OIL REPORTED

Your Journal of May 23 has an inquiry in the Technical Questions Answered, page 91, about ichthyol, and it seems like your Technical Editor does not know of any crude oil in the Southwest containing ichthyol. I am part owner of the ——— ranch, ———. The oil has about 25 per cent of ichthyol. You will find a description of the same in the newspaper clipping that I preserved from 1925. In the event that the gentleman that has made the inquiry desires to know anything more about the ichthyol on ——— ranch, would you please let him know my name and address?—F. G.

There may be oils which contain material from which ichthyol may be prepared. Occasionally a very heavy oil is discovered which is reported to contain large quantities of ichthyol but such reports seldom withstand serious examination. The usual material from which this product is prepared is shale. The distillate from the shale is treated with concentrated acid, the mixture diluted with brine and any excess of oil removed by solution in naphtha. The product always contains some ammonium sulphate, organic acids, phenols and various complex sulphur compounds. It is a thick, black-brown liquid having a bituminous odor; soluble in water, alcohol, ether and glycerin.

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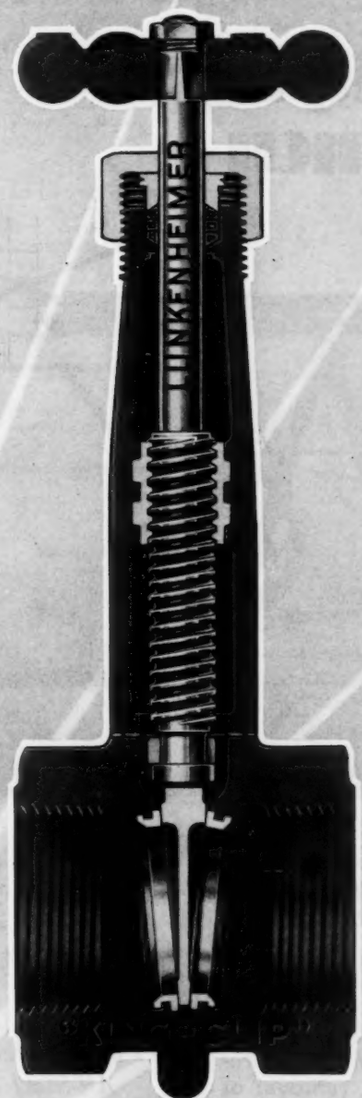

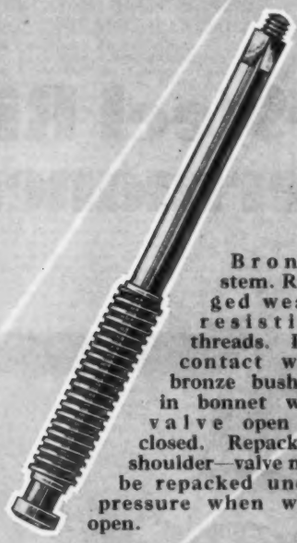

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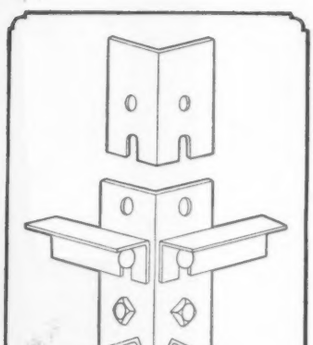

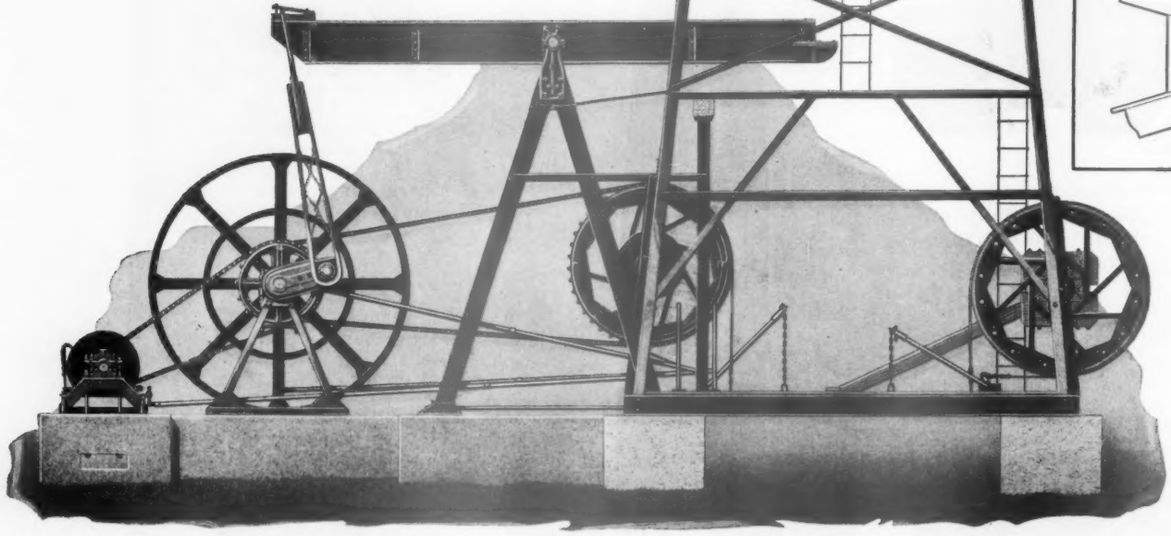

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EXPLAIN DATA FROM AIR DISTILLATION

(Continued from Page 46)

Fahrenheit) with special effort to obtain true equilibrium conditions.

Air-Distillation Apparatus

The apparatus used in making air-distillations was described in last year's report. Figure 2 shows the general arrangement and is practically self explanatory.

In operation, the thermostat is first brought to the desired temperature. Then dried air is sent through at the desired rate as indicated by the orifice meter. The fuel burret is filled with the fuel and the proper plunger adjusted to feed fuel at the desired rate depending upon the air-fuel ratio desired and the air rate. After about 15 minutes the apparatus reaches a steady state and readings of residue collected are regularly taken.

From the amount and specific gravity of the feed and the amount and specific gravity of the residue, the per cent by weight vaporized may be calculated. The temperature of the thermostat is then changed to a higher or lower temperature as desired, and the same procedure repeated, using the same conditions of fuel and air feed. By repeating this procedure at a number of different temperatures an air distillation curve may be constructed by plotting per cent (by weight) vaporized, as a function of temperature (dashed lines Figure 3). This curve represents the per cent vaporized when a particular fuel is fed at the specified air-fuel ratio and rate of feed.

The endpoint or point of 100 per cent vaporization cannot be determined directly by the preceding method, but is found by extending the vaporization curve to 100 per cent vaporized. This value is then checked directly by the dewpoint apparatus. For this determination the two-way stopcock in the feed line is turned to feed the liquid fuel to the dewpoint apparatus. The air valves are also changed to supply air to this apparatus directly. The dewpoint temperature is then determined in the same way as described by Stevenson and Babor.[10] With proper precautions the dewpoint as determined by each process is identical.

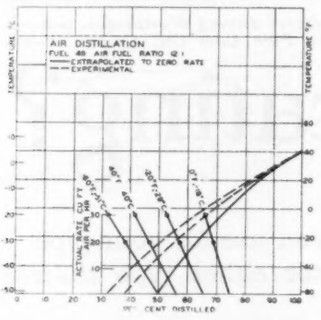

Figure 3—Experimental results at 30 and 20 cubic feet per hour extrapolated to zero rate. Fuel 48.

The mixture of vapor and air leaving the dewpoint apparatus may be passed into the coil of the air distillation apparatus in order to approach equilibrium from the vapor side. This method was found less satisfactory than feeding liquid fuel to the coil, and as the results of the two different methods did not agree most of the determinations were made by feeding liquid to the coil of the air distillation apparatus. Early in this work, as reported last year, it was discovered that over certain ranges, different air-fuel rates through the apparatus (for the same air-fuel ratio) resulted in different per cents vaporized at the same temperature. Where this effect was noticed, higher rates through the apparatus gave lower per cents vaporized for any given air-fuel ratio. This is most pronounced at low temperatures with lean mixtures, but seems to disappear, or at least the divergence is within the experimental variation of the apparatus at higher temperatures or near the temperature of 100 per cent vaporization.

[10]Ind. and Eng. Chem. Vol. 19, p. 1,361 (1927).

Results of Tests

Although more than 50 fuels have been studied more or less completely it is impossible to present all these data at this time. Determinations of the effect of rate on the vaporization of the fuel indicated a straight line relationship as shown in Figure 3. The dashed curves represent the experimental data taken at two different rates, plotted as per cent by weight vaporized at different temperatures. In this figure the oblique straight lines are plotted as air rate through the apparatus indicated at the left as a function of the per cent vaporized, each line being that of one particular temperature as indicated. These lines intersect the base line at the percentage vaporization corresponding to zero rate. The per cent at zero rate is then plotted as a function of temperature, giving the volatility (solid) curve as shown. Similar extrapolations for other air-fuel ratios were made. The resulting group of volatility curves is shown as the solid lines in Figure 4.

The resultant air-vapor ratios formed by feeding a definite air-fuel ratio at a definite temperature, can be calculated readily from these curves. For example, when 60 per cent is vaporized from a 12-to-1 feed mixture, the vapor phase will have an air-gasoline ratio of 12 to 0.6 or 20 to 1. These resultant curves should be continuous smooth lines since they depend upon the vapor pressure of the fuel residue which changes continuously with temperature and per cent vaporized.

Such a set of resultant mixture curves for Fuel 48 is shown as the dashed lines in Figure 4. The futility of trying to obtain equilibrium results by extrapolating to zero rate is apparent. These resultant curves should in no case require a higher temperature for a lower feed ratio. The most extreme case would be that of a pure compound, where the resultant mixture curve would be a horizontal line, due to the constancy of composition of both the vaporized portion and the residue. The resultant curves for a complex mixture such as a motor fuel or gasoline, require a gradually increasing temperature as more of the fuel is vaporized due to the decreasing volatility and vapor pressure of the residue. In no case will the residual liquid become more volatile with a greater per cent vaporized as is indicated between 20 and 40 per cent vaporized, in Figure 4, and between 10 and 30 per cent in Figure 1. The 20 to 1 air-fuel ratio curve, apparently shows less vaporization than the 12 to 1 air-fuel ratio curve at minus 60 degrees Fahrenheit (minus 50 degrees Centigrade). This is also impossible under equilibrium conditions.

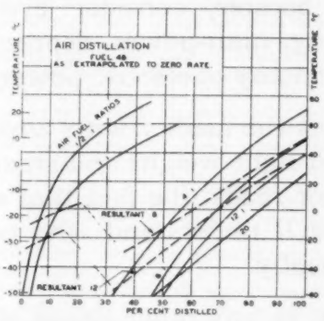

Figure 4—Volatility curves obtained by extropolating experimental data to zero rate. Fuel 48.

These results so similar to those shown in Figure 1 from Bridgeman's data and further verified on other fuels, clearly indicate that equilibrium conditions cannot be reliably estimated from the air distillation apparatus by extrapolating to zero rate. The results of such extrapolations on other fuels indicate a similar condition, but the obvious error is not so pronounced at higher temperatures. To interpret such data correctly is very difficult and cannot be done without know-

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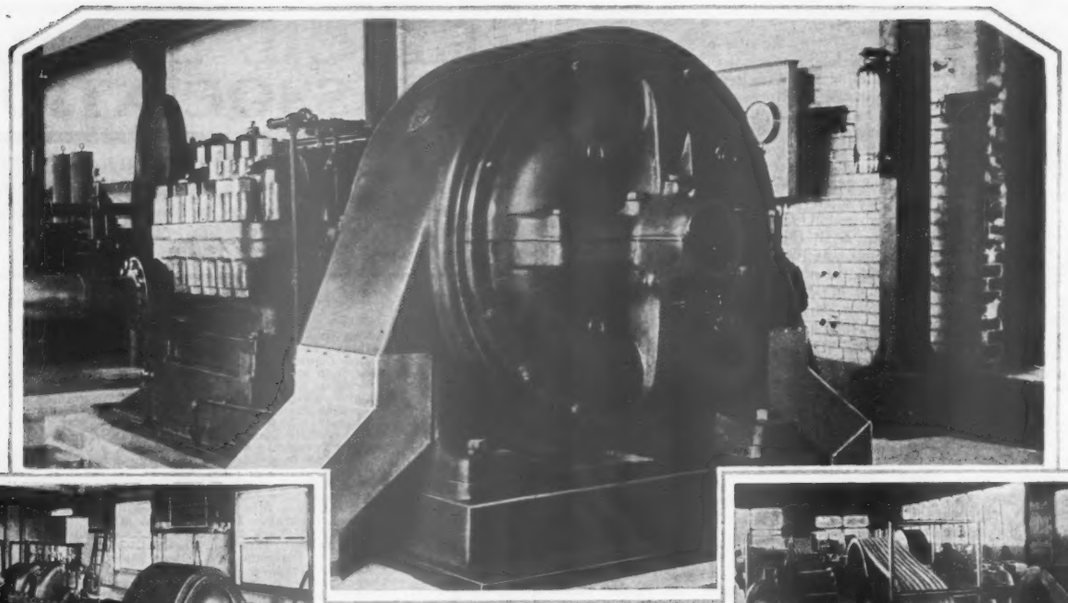
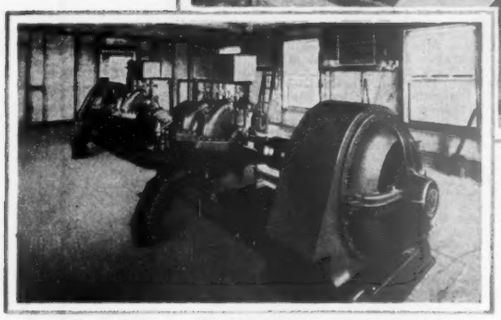
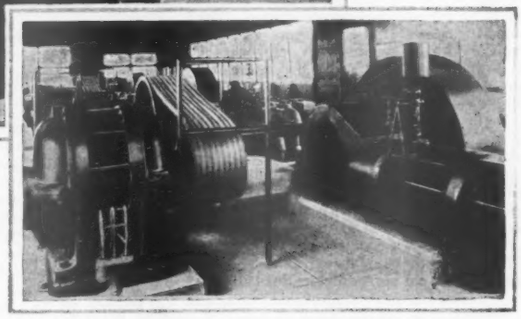


1000-hp G-E motor driving Cameron pump in station of Standard Pipe Line Co., Mandenville, Ark.



Two G-E 300-hp. motors driving Byron Jackson pumps. Oklahoma Pipe Line Co., Henryetta, Okla.



Three G-E 150-hp. motors driving Worthington pumps in station of Magnolia Pipe Line Co., Crane, Texas

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ing the deviations from the true equilibrium.

Raoult's Law

Raoult's law usually may be applied to solutions of similar substances and it seems reasonable that the vaporization process in the presence of air may be computed by the use of Raoult's law in a manner similar to that previously reported[11]. To do this it is necessary to have an accurate knowledge of the compounds present in the fuel under consideration. Fuel 48 was then analyzed by fractional distillation in equipment similar to that described by Oberfell and Alden[12]; and by W. J. Podbielniak[13], in taking extreme care to obtain a close and accurate separation between the various components, with the results given in Table 1.

TABLE 1
Results of Fractional Distillation Analysis Fuel No. 48

Compound—	Formula	Molecular weight	Mol. pct.
Iso-Butane	C_4H_{10}	58.077	0.54
N-Butane	C_4H_{10}	58.077	4.14
Iso-Pentane	C_5H_{12}	72.092	11.06
N-Pentane	C_5H_{12}	72.092	31.51
Iso-Hexanes	C_6H_{14}	86.108	14.03
N-Hexane	C_6H_{14}	86.108	12.30
Dimethyl-pentane 2, 4 ..	C_7H_{16}	100.12	7.54
3 Ethyl-pentane.	C_7H_{16}	100.12	5.53
N-Heptane	C_7H_{16}	100.12	3.32
Iso-Octanes	C_8H_{18}	114.14	7.16
N-Octane	C_8H_{18}	114.14	2.87
			100.00

Average molecular weight=83.923.

Using this composition the vaporization curves shown by the light dashed lines in Figure 5 were computed over a

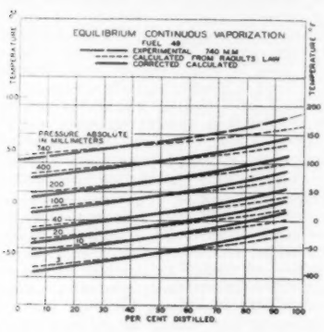

Figure 5—Equilibrium continuous distillation. Fuel 48.

range of 3 to 740 m.m. pressure and 5 to 90 mol per cent vaporized.

In order to determine the equilibrium air distillation data for Fuel 48, the partial pressure of the gasoline vapor in the

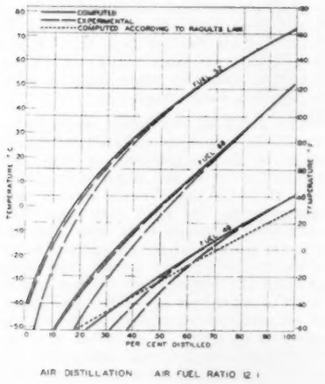

Figure 6—Air distillation three fuels. Air fuel ratio 12 to 1.

air-vapor mixture for a particular air-fuel ratio and per cent vaporized is determined. The temperature corresponding to this pressure and per cent vaporized is then found from Figure 5, because the partial pressure of gasoline vapor in the air distillation corresponds to the total pressure in continuous vaporization without air.

By this process of calculation other values are found, from which a plot of per cent vaporized as a function of temperature may be prepared, (Figure 6, dotted line) for a 12 to 1 air-fuel ratio. In this figure the dashed lines represent experimental data actually determined with the air distillation apparatus. The computed curve does not agree in any way with the experimental results. At the higher temperatures where rate does not affect the experimental results, the calculated values are below the experimental, or in other words the calculations show a greater percentage vaporized than is found by experiment at the same temperature. But at lower temperatures the computations show a smaller percentage vaporized than do the experimental results. Other investigators[14] have shown that an application of Raoult's law to binary mixtures of paraffin hydrocarbons gives results indicating too high a vapor pressure for the less volatile component and too low a vapor pressure for the more volatile component. This same tendency is shown here but the exact deviation is not obvious.

In order to determine the apparent deviation from Raoult's law in the case of Fuel 48, so that the equilibrium vaporization of this fuel at low temperatures could be correctly computed, equilibrium vaporization of this fuel was conducted at atmospheric pressure in the continuous vaporization apparatus, described in last year's report for equilibrium vaporization of natural gasoline. This vaporizer has been found to give results independent of rate (and therefore approximating true equilibrium vaporization) over a feed range of 6 to 15 c.c. per minute.

Compare Raoult's Law

The results of a series of continuous vaporizations on Fuel 48 at 740 m.m. pressure, are plotted in Figure 5 as the heavy dashed line at 740 m.m. pressure, which crosses the calculated (dotted) curve.

Comparison of these experimental results, with those calculated by Raoult's law gives a quantitative measure of the apparent deviations from Raoult's law as applied to this fuel. The calculated curve shows about 9 per cent less vaporized than does the experimental curve at the 10 per cent point. The opposite is true at the 90 per cent point, for here the calculated results show about 12 per cent more vaporized than the experimental.

Galingaert and Hitchcock[15] report deviations in the partial pressures of binary mixtures of paraffin hydrocarbons varying from 0 to plus or minus 16 per cent. Brown and Caine[16] have found deviations for Mid-Continent, Pennsylvania and California naphthas of 14, 12 and 10 per cent respectively, as compared with about 10 to 12 per cent indicated for 80 per cent vaporization of natural gasoline as represented by Fuel 48.

Other work, not yet completed, supports the assumption that these deviations determined at 740 m.m. pressure are also applicable at lower partial pressures[17]. Accordingly, the computed equilibrium vaporization at reduced pressures (dotted lines, Figure 7) were corrected as indicated by the solid lines, by applying the same corrections, in per cent vaporized, at all pressures.

Computed Equilibrium Volatility

From the corrected equilibrium vaporization curves in Figure 5, the corrected equilibrium vaporization in the presence of air may be computed for different air-fuel ratios in the manner described and indicated in Figure 6.

These equilbrium volatilities computed from corrected equilibrium vaporization curves agree perfectly with the experimental air-distillation curves (dashed lines) at the higher temperatures and nearly complete vaporization where the air-distillation is not affected by rate. The dewpoints determined by this meth-

[11]Proceedings Natural Gasoline Association, May, 1928. Ind. and Eng. Chem. (July, 1929).
[12]The Oil and Gas Journal, page 142 (October 18, 1928).
[13]The Oil and Gas Journal, page 38 (January 17, 1929).
[14]Calingaert and Hitchcock, page 750, Jr. S.A.E., 49, (March, 1927).
[15]Jr. S.A.E., Vol. 49, page 750, March, 1927.
[16]Vapor-Liquid Equilibria in Complex Hydrocarbon Mixtures, preprint, Amer. Inst. Chem. Eng., August 24, 1928.
[17]Piroomov and Beiswenger, Bull. A.P.I. 10, No. 2, page 52 (January 3, 1929).

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od of calculation are also in perfect agreement with the dewpoints as determined by the Sligh air distillation method and by the Stevenson Babor dynamic dewpoint apparatus.

The perfect agreement between computed results and all experimental data obtained under equilibrium conditions, is direct evidence that the computed results closely approximate equilibrium conditions.

A plot of these computed equilibrium volatility curves of Fuel 48 as in Figure 7 yield resultant curves (dashed lines), drawn in same manner as those of Fig-

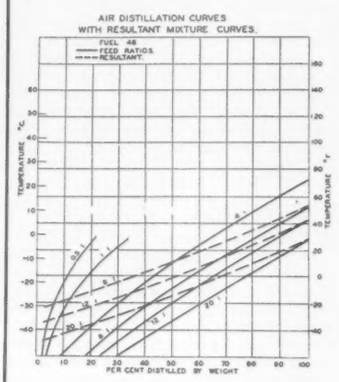

Figure 7—Air distillation curves with mixture curves.

ure 4, that are continuous, and indicate always a higher temperature for the same partial vapor pressure as the residue becomes less volatile. These results (Figure 7) are perfectly rational, as contrasted with the ridiculous results of Figures 1 and 4. Fuel 68, representing a different type of fuels, was submitted to the same tests with very similar results which are not given in detail as they would be largely a repetition of the results as reported for Fuel 48.

In the case of both fuels, rather wide differences between experimental and computed results at low temperatures are evident.

Under some conditions the calculated results show more vaporized than either of the experimental rates, while at other temperatures or rates the calculated results show less vaporized than the experimental data. In the curves of the 20 to 1 air-fuel ratio there is an exact agreement between the calculated results and the experimental results at the higher rate.

In the case of the 12 to 1 air-fuel ratios, the calculated results show less vaporization than either experimental rate over most of the range as indicated in Figure 6. The rich mixtures, such as 1 to 1 were run at very low rates and the computed results indicate greater vaporization, but the agreement between calculated and experimental results is much better for Fuel 68 than for Fuel 48 because of the higher temperatures.

Other fuels have been investigated in the same manner and with similar results so far as the air distillation is concerned. This striking similarity in the type and magnitude of the deviations between the calculated and the experimental results makes possible a close approximation of the true equilibrium air distillation curves for other fuels, if the experimental data are available over the same range of air-fuel ratios and rates as for fuel, which have been investigated in the manner described for Fuel 48.

The deviations between the calculated and experimental results as found in the case of Fuels 68 and 48 were applied to the experimental results of Fuels 13, 60 and 52, in order to approximate closely true equilibrium conditions. The direct calculations for these less volatile fuels would be extremely difficult if not impossible due to the difficulty in analysis of such high boiling samples, and appear unnecessary as the experimental air distillation data may be properly interpreted directly.

These resultant curves from the calculated distillation data are always continuous, and indicate always a higher temperature for the same partial vapor pressure as the residual liquid becomes less volatile due to increasing vaporization of its more volatile components.

The accuracy of these calculations is further established by the perfect agreement with the results of the air distillation at all air-fuel ratios and temperatures where changes in rate have no effect on the results and true equilibrium conditions are probably closely approximated.

By following the steps carefully it can be seen that no unproved assumption has been made in deriving these equilibrium air-distillation, or equilibrium-volatility curves. Even possible errors in the fractional distillation analyses and application of Raoult's Law have been eliminated.

Discuss Air Distillation

Under some conditions the air distillation apparatus gives more material vaporized than would be the case in a true equilibrium vaporization in the presence of air. It is difficult to visualize just what process would permit such conditions. This is most evident at low temperatures and with moderate velocities through the vaporization coil. If equilibrium is attained early in the passage through the coil, there can be no further vaporization or condensation, regardless of the relative motions of the liquid and vapor, since the temperature is uniform and the vapor in the air is in equilibrium with the liquid with which it comes in contact. However, if equilibrium is not reached rapidly as is evidently the case at low temperatures, where the fuel is more viscous and reactions are always slower, entirely different conditions exist, and the apparatus may act as a combined, partial vaporizer and absorber. Under such conditions the results are quite different from those obtained in a continuous equilibrium vaporization.

If some type of apparatus can be devised that will give results independent of rate within limits, it may be possible to determine directly the equilibrium volatility of fuels. This might be accomplished with extremely low rates through the Sligh apparatus, but the practical utility of the results so obtained would not justify the effort. Because knowledge of equilibrium volatility of various fuels was considered essential in our studies of fuel volatility a reasonably simple method of approximating equilibrium volatility was desirable.

Correlate Volatility and A.S.T.M. Distillation

Several attempts have been made to relate some form of equilibrium distillation, or of air distillation to the A.S.T.M. distillation. In most cases, an attempt has been made to relate definite points on the two distillations.

The A.S.T.M. is a batch distillation in which the vapor is removed as formed, while in an equilibrium or continuous distillation all of the vapor is in contact with all of the liquid at the time of measurement. In the first case (A.S.T.M.) each point depends only upon the components present at that stage of the distillation, while in the second type of distillation the vaporization at any temperature is dependent upon the total amount of all components present in the original sample. In order to establish a precise relationship of universal application over a wide variety of fuels, the entire curve of the batch distillation must be considered for each equilibrium point, as has been suggested by Gruse.

This process is too complicated to be of practical value. A relationship between corresponding points on the two distillation curves is highly desirable because of its simplicity. If limited to fuels of a single type, such as blends of natural gasoline with U. S. Motor fuel, the errors in relating corresponding points may be reduced to within the practical limits of accuracy of the A.S.T.M. distillation and are probably less than the errors involved in estimating true equilibrium conditions by extrapolating to zero rate experiment-

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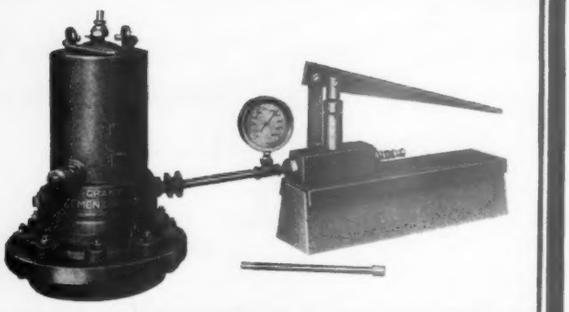

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Relationship for Natural Gasoline Blends

Figures 8 to 12 give a graphical presentation of such a relationship. These charts consists of the usual A.S.T.M. distillation plots with distillation loss added at the lower end on rectangular co-ordinates. Superimposed upon this in each chart is another set of temperature co-ordinates for the equilibrium air distillation. These are drawn in such a way that they intersect the A.S.T.M. curves at the per cent vaporized corresponding to that particular equilibrium air distillation temperature. These additional temperature co-ordinates are constructed by taking the equilibrium air distillation data for this group of fuels and location on the A.S.T.M. curves the proper percentage points corresponding to particular temperatures. These points are then connected by a smooth curve. The charts given are for motor fuels similar to No. 13 for natural gasoline, and for blends of these two giving intermediate fuels such as No. 68. This particular relationship may not be applied to fuels of different character without appreciable error as indicated by the points on fuels 52 and 60 which do not fall on the curves.

With the A.S.T.M. distillation data determined for the particular fuel in question the E.A.D. (equilibrium air distillation) data may be found from these charts by plotting the A.S.T.M. curve of the fuel on each chart. These curves will intersect the E.A.D. temperature co-ordinates at the per cent vaporization corresponding to that particular E.A.D. temperature. The E.A.D. curves for the fuel at various air-fuel ratios may then be plotted.

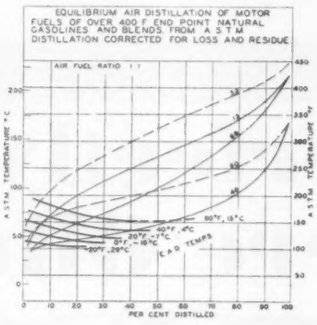
EQUILIBRIUM AIR DISTILLATION OF MOTOR FUELS OF OVER 400 F END POINT NATURAL GASOLINES AND BLENDS, FROM A S T M DISTILLATION CORRECTED FOR LOSS AND RESIDUE
AIR FUEL RATIO 1 1
A S T M TEMPERATURE °C
A S T M TEMPERATURE °F
E A D TEMPS
PER CENT DISTILLED

Figure 8—Equilibrium air distillation. Various gasolines plotted with A.S.T.M. distillation curves. Air-fuel ratio 1 to 1.

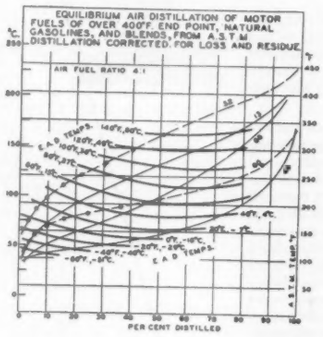
EQUILIBRIUM AIR DISTILLATION OF MOTOR FUELS OF OVER 400°F. END POINT, NATURAL GASOLINES, AND BLENDS, FROM A.S.T.M. DISTILLATION CORRECTED FOR LOSS AND RESIDUE
AIR FUEL RATIO 4 1
E A D TEMPS
A S T M TEMP °F
PER CENT DISTILLED

Figure 9—Equilibrium air distillations. Various gasolines plotted with A.S.T.M. distillation curves. Air-fuel ratio 4 to 1.

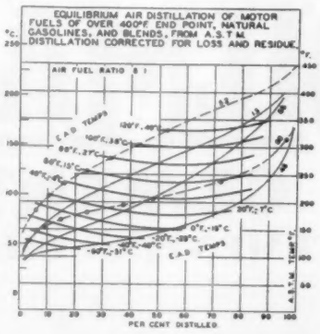
EQUILIBRIUM AIR DISTILLATION OF MOTOR FUELS OF OVER 400°F. END POINT, NATURAL GASOLINES, AND BLENDS, FROM A.S.T.M. DISTILLATION CORRECTED FOR LOSS AND RESIDUE
AIR FUEL RATIO 8 1
E A D TEMPS
A S T M TEMP °F
PER CENT DISTILLED

Figure 10—Equilibrium air distillation. Various gasolines plotted with A.S.T.M. distillation curves. Air-fuel ratio 8 to 1.

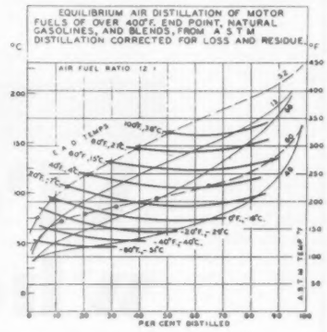
EQUILIBRIUM AIR DISTILLATION OF MOTOR FUELS OF OVER 400°F. END POINT, NATURAL GASOLINES, AND BLENDS, FROM A S T M DISTILLATION CORRECTED FOR LOSS AND RESIDUE
AIR FUEL RATIO 12 1
A S T M TEMP °F
PER CENT DISTILLED

Figure 11—Equilibrium air distillation. Various gasolines plotted with A.S.T.M. distillation curves. Air-fuel ratio 12 to 1.

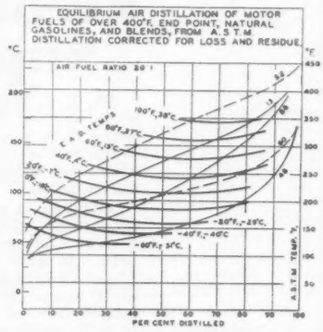
EQUILIBRIUM AIR DISTILLATION OF MOTOR FUELS OF OVER 400°F. END POINT, NATURAL GASOLINES, AND BLENDS, FROM A.S.T.M. DISTILLATION CORRECTED FOR LOSS AND RESIDUE
AIR FUEL RATIO 20 1
A S T M TEMP °F
PER CENT DISTILLED

Figure 12—Equilibrium air distillation. Various gasolines plotted with A.S.T.M. distillation curves. Air-fuel ratio 20 to 1.

Conclusions

It is found impossible to relate a particular point on the A.S.T.M. distillation with a similar point on the equilibrium air distillation that will fit all fuels. However, if fuels of similar distillation characteristics and range are to be compared, such a relationship may be applied with a reasonable degree of accuracy.

The air distillation as conducted at present does not give equilibrium conditions although possibly indicates relatively the results to be found in the engine manifold with different fuels.

The true equilibrium volatility of natural gasolines and blends with U. S. Motor fuel may be closely estimated from the A.S.T.M. distillation by the relationships given in Figures 8 to 12.

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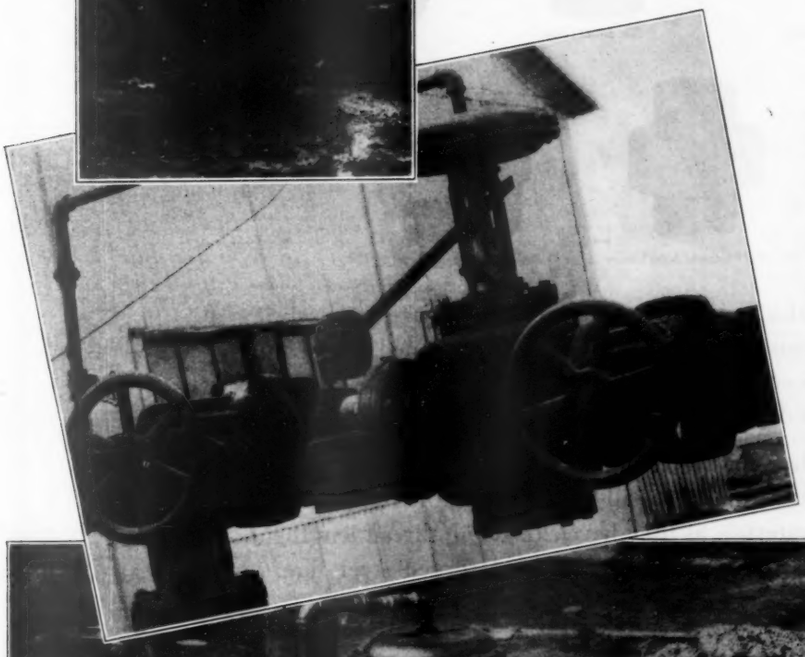

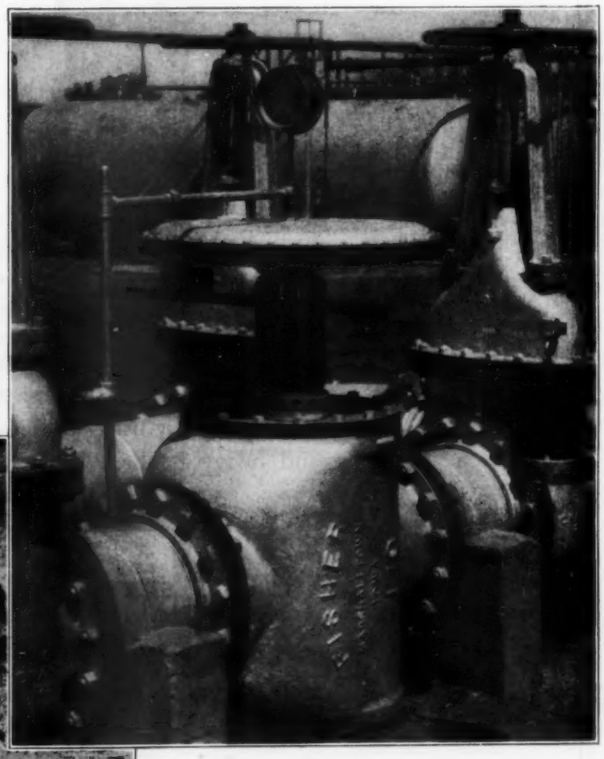

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Humble Oil & Refg.'s No. 1-B Deatherage ..... Shut down for rig repair 3,855 ft.
Humble Oil & Refining Co.'s No. 1 Hamner fee ..... Drlg. sandy shale 3,341 ft.
Humble Oil & Refg.'s No. 2 Hamner fee ..... Coring sandy shale showing oil 3,641 ft.
Humble Oil & Refg.'s No. 3 Hamner fee ..... Location standing.
Humble Oil & Refg.'s Co.'s No. 4 Hamner fee ..... Shut down for high water 3,525 ft.
Humble Oil & Refg. Co.'s No. 2 Dew Bros. ..... Location.

HUMBLE—HARRIS COUNTY

Humble Oil & Refg. Co.'s No. 1 Williams, south side deep test ..... Drill stem stuck total depth 4,888 ft; sidetracking 4,601 ft.
Marland Oil Co.'s No. 1 Cezwaux, south side ..... Gumbo 3,606 ft.; set 9⅝-in. casing.
Harvey Smith et al's No. 1 Rosenthall, north side ..... Drlg. gumbo 1,000 ft.
So. Texas Pet. Co.'s No. 5 Morris, south side ..... Drlg. shale 4,011 ft.
So. Texas Pet. Co.'s No. 5 Morris, south side ..... Drlg. shale 3,028 ft.
So. Texas Pet. Co.'s No. 1 Burt, south side ..... Set 9⅝-in. casing 4,780 ft.; total 4,800 ft.
Sun Oil Co.'s No. 47 River, north side ..... Coring 4,412 ft.
The Texas Company's No. 262 Landslide, south ..... Stopped flowing; to work over; total depth 4,942 ft.
The Texas Company's No. 263 Landslide, south ..... Drlg. brown sticky shale 4,476 ft.
The Texas Company's No. 264 Landslide, south ..... Cem. casing 3,800 ft.
The Texas Company's No. 265 Landslide, south ..... Derrick.
The Texas Company's No. 21 Wheeler & Pickens, south.. Drlg. shale and boulders 4,268 ft.
The Texas Company's No. 266 Landslide ..... Location.
The Texas Company's No. 29 C.O.&G. ..... Location.
The Texas Company's No. 35 Koehler ..... Location.

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Gulf Production Co.'s No. 15 Luscher, east side ..... Sand and shale showing oil 3,963 ft.
Moody Corp.'s No. 6 West-Schenck, south side ..... Sidetracking in oil sand 3,948-88 ft.
Navarro Oil Co.'s No. 1-C Robinson, northwest ..... Drlg. sand and shale 4,232 ft.
Sinclair Oil & Gas Co.'s No. 4 Davison, east side; old well drilling deeper ..... Comp. flowing 1,500 bbls. 4,336 ft.
So. Texas Pet. Co.'s No. 1 Davison, east side, old well drilling deeper ..... Comp. flowing 1,900 bbls. 4,374 ft.

PIERCE JUNCTION—HARRIS COUNTY

Gulf Production Co.'s No. 30 Taylor, east ..... Drlg. 3,049 ft.
Gulf Production Co.'s No. 3 Fitzsimmons-Hammon ..... To deepen, 4,443 ft.
Moody Corp.'s No. 2 Calvert, northeast ..... Spudded.
Moody Corp.'s No. 2-A Whitehead, northeast ..... Drlg. gumbo 3,120 ft.
Moody Corp.'s No. 5-B Whitehead ..... Location.
Moody Corp.'s No. 1 Herman, southwest (old well) ..... Drlg. rock 2,943 ft.
Navarro & Humble Oil & Refg. Co.'s No. 3 Dooley (old well), east side ..... Comp. flowing 1,200 bbls. 4,686 ft.
Navarro Oil Co.-Humble Oil & Refg. Co.'s No. 4 Dooley, east ..... Rig.
Navarro Oil Co.-Texas Exploration Co.'s No. 16 Dooley, east side ..... Rigging up.
Navarro Oil Co.'s No. 4-B Cain ..... Rig.
Pure Oil Co.'s No. 1 Herman estate, southwest ..... Pulling strainer to deepen; tested salt water 4,090 ft.
Rio Bravo Oil Co.'s No. 4 fee, west side (old well) ..... Comp. flowing 700 bbls. 3,592-3,622 ft.
Rio Bravo Oil Co.'s No. 8-A Settegast (old well) ..... To work over.
Rio Bravo Oil Co.'s No. 14-A Settegast, west ..... Drlg. hard sand rock 1,532 ft.
Rio Bravo Oil Co.'s No. 15-A Settegast, southwest ..... Drlg. 3,578 ft.
Saxet Gas Co.'s No. 2 Herman estate, southwest ..... Blowout 4,229 ft.; est. 40,000,000 ft. dry gas.
Saxet Gas Co.'s No. 3 Herman estate, southwest ..... Drlg. shale and boulders 960 ft.
Smith et al's No. 3 Parson (old well), northwest ..... Tested dry 4,514 ft.; to deepen.
So. Texas Pet. Co.'s No. 1 Meyers, southeast side wildcat.. Aband. in shale 5,254 ft.
Shaw & Texas Exploration Co.'s No. 2-E Fitzsimmons... Comp. flowing 1,000 bbls. 4,547 ft.
J. T. Barron's No. 3 Fitzsimmons ..... Derrick standing.
Shaw & Texas Exploration Co.'s No. 2-F Fitzsimmons... Derrick.
T. G. Shaw's No. 1 Dooley ..... Location.

LIBERTY—LIBERTY COUNTY

Empire Gas & Fuel Co.'s No. 3 Goggan ..... Rigged; standing high water.
J. W. O'Brien's No. 1 Hanszen ..... Standing; cavity 660 ft.
Mecom Oil Co.'s No. 1 Barrett ..... Pumping 20 bbls. 2,887 ft.
Navarro Oil Co.'s No. 5 Baldwin Community ..... Location.
Pierce & Rogers' No. 1 Pickett ..... No report.
Sun Oil Co.'s No. 45 Mitchell ..... Rigged up.
Sun Oil Co.'s No. 46 Mitchell ..... Location.
The Texas Company's No. 21 Staiti ..... Drlg. shale 847 ft.
The Texas Company's No. 3 Pickett ..... Sand and shale 5,174 ft.; preparing to test.
Vacuum Oil Co.'s No. 11 Barrett ..... Flowed small head; running tubing 2,817 ft.
Yount Lee Oil Co.'s No. 17 Mitchell ..... Gumbo 639 ft.; shut down high water.

HULL—LIBERTY COUNTY

Daisetta Oil Co.'s No. 1 Wilson ..... Drlg. 1,822 ft.
Empire Gas & Fuel Co.'s No. 21 Barngrover ..... Rigging up to pump 3,762 ft.
Gulf Production Co.'s No. 64 Phoenix (old well) ..... Pumping 30 bbls. net oil 3,462 ft.
Gulf Production Co.'s No. 93 Phoenix ..... Drlg. 526 ft.
Humble Oil & Ref. Co.'s No. 4 Hooks-Spell (old well).... Drlg. 3,582 ft.
Republic Production Co.'s No. 24 Dolbear (old well) .... Drlg. 692 ft.
Republic Production Co.'s No. 65 Dolbear (old well) ..... Pumping 450 bbls. oil 2,812 ft.
Republic Production Co.'s No. 129 Dolbear (old well).... To work over.
Republic Production Co.'s No. 113 Dolbear (old well) .... Pumping 250 bbls. oil 2,837 ft.
Republic Production Co.'s No. 1 Taylor ..... Drlg. 3,859 ft.

BIG CREEK—FORT BEND COUNTY

Benedum & Trees' No. 2 Ahlers ..... Rigged up; to deepen.
Gulf Prod. Co.'s No. 37 Davis (old well) ..... Drlg. 4,392 ft.
Gulf Prod. Co.'s No. 53 Davis ..... Set 5 joints screen 4,218 ft.; flow 3,800 bbls. oil; grav. 25.8 at 90 degrees.
Navarro Oil Co.'s No. 3 Haussler (former gas well)..... Rig up to deepen; 3,233 ft.
Navarro Oil Co.'s No. 4 Davis ..... Location.

NASH—BRAZORIA COUNTY

Rycade Oil Corp.'s No. 26 Wisdom ..... Drlg. 1,657 ft.

BATSON—HARDIN COUNTY

Acorn Oil Co.'s No. 70 Paraffine ..... Drlg. 1,078 ft.
Capitol Oil Co.'s No. 11 Hodges ..... To pump 3,190 ft.
Gulf Production Co.'s No. 18 Knight fee (old well) .... To deepen, 451 feet.
Paraffine Oil Co.'s No. 46 Paraffine ..... Standing 1,248 ft.

SOUR LAKE—HARDIN COUNTY

Gulf Prod. Co.'s No. 3 Thomason (workover) ..... Drlg. 4,267 ft.
F. B. Hart's No. 1 Work-Davis ..... Pumping 12 bbls. net oil 879 ft.
Humble Oil & Refg. Co.'s No. 2-C Jackson (old well).... To deepen.
Lake View Oil Co.'s No. 60 Hardin ..... Location.

SARATOGA—HARDIN COUNTY

Cullen & West's No. 1 Bashara (Baker) ..... Fishing 4,401 ft.
Weldon Oil Co.'s No. 7 Bradley-Hooks ..... Pump. 25 bbls. net oil 1,598 ft.
E. W. Skinner's No. 2 Sissler ..... Aband. 2,133 ft.

ORANGE—ORANGE COUNTY

Brownie Babbette Oil Co.'s No. 12 McLean (old well).... Drlg. deeper, 3,825 ft.
Orange Pet. Co.'s No. 3 Berwick (old well) ..... Drlg. 3,112 ft.
Rex Petroleum Co.'s No. 2-B Carbello (old well)..... To deepen.

GOOSE CREEK—HARRIS COUNTY

Humble Oil & Ref. Co.'s No. 75 Simms-Smith ..... Fishing screen 4,488 ft.
C. T. Rucker's No. 1 Jones ..... Drlg. 832 ft.
Russell Farrell's No. 5 Gillette (old well) ..... Oil sand 2,562 ft.; fishing baller.

SPINDLETOP—JEFFERSON COUNTY

Gulf Prod. Co.'s No. 8 Roche (workover) ..... Tested salt water 3,420 ft.; pulling strainer to deepen.
Unity Oil Co.'s No. 14 Gladys City ..... Oil standing; to pump.
Yount Lee Oil Co.'s No. 14 McFaddin (old well) ..... Drlg. shale 2,900 ft.
Unity Oil Co.'s No. 15 Gladys ..... Drlg. rock 473 ft.
Yount Lee Oil Co.'s No. 26 McFaddin (workover) ..... Standing 3,405 ft.
Yount Lee Oil Co.'s No. 104 McFaddin ..... Shale 3,450 ft.
Yount Lee Oil Co.'s No. 105 McFaddin ..... Drlg. 3,455 ft.
Yount Lee Oil Co.'s No. 106 McFaddin ..... Drlg. gumbo 2,728 ft.
Yount Lee Oil Co.'s No. 107 McFaddin ..... Location.
Yount Lee Oil Co.'s No. 4 fee (workover) ..... Coring 4,450 ft.
Yount Lee Oil Co.'s No. 86 Gladys City ..... Comp. flowing 150 bbls. 2,776 ft.
Yount Lee Oil Co.'s No. 91 Gladys City ..... No report.
Yount Lee Oil Co.'s No. 92 Gladys City ..... Drlg. 3,175 ft.
Yount Lee Oil Co.'s No. 93 Gladys City ..... Rig.

WEST COLUMBIA—BRAZORIA COUNTY

Humble Oil & Refg. Co.'s No. 3 Smith ..... Location.
The Texas Company's No. 24 Arnold ..... Location standing.

HIGH ISLAND—GALVESTON COUNTY

Gulf Production Co.'s No. 9 Smith ..... Rig.
Marrs McLean's No. 11 Cade (old well) ..... Pumping 35 bbls. 3,741 ft.
Marrs McLean's No. 15 Cade ..... Tested salt water 3,387 ft.; standing.

DAMON MOUND—BRAZORIA COUNTY

Sinclair Oil & Gas Co.'s No. 6 Norton ..... Drlg. hard lime 1,732 ft.
Leonard Petroleum Co.'s No. 4 Wisdom ..... Drlg. hard sand and lime 1,732 ft.

MARKHAM—MATAGORDA COUNTY

Rycade Oil Corp.-Humble Oil & Ref. Co.'s No. 6-A Kountze ..... Shut down; high water 3,797 ft.
West Prod. Co.'s No. 1 Myers ..... Set 2 joints 4½-in. screen; to test hard sand showing oil 4,408 ft.

ORCHARD—FORT BEND COUNTY

Gulf Prod. Co.'s No. 19 Moore ..... Sandy shale 3,696 ft.; et 9⅝-in. casing.

NORTH DAYTON—LIBERTY COUNTY

Fort Bend Oil Co.'s No. 1 Ballarack ..... Oil sand; set 22 ft. 4½-in. strainer 3,704 ft.; swabbed 100 bbls.; to deepen.
Sun Oil Co.'s No. 2 Kovelcik ..... No report.

SOUTH LOUISIANA FIELDS

LOCKPORT—CALCASIEU PARISH

Shell Petroleum Corp.'s No. 1 Miller ..... Drlg. sticky, sandy shale and blue lime 5,790 ft.
The Texas Company's No. 1 Moss ..... Cratered and abandoned 4,715 ft.
Vacuum Oil Co.-Gulf Ref. Co.'s No. 9 Miller ..... Preparing to work over 4,392 ft.
Vacuum & Gulf's No. 15 Miller ..... Drlg. shale 5,332 ft.
Vacuum & Gulf's No. 24 Miller ..... Comp. flowing 400 bbls. fluid, 50 per cent water, 4,384 ft.
Vacuum & Gulf's No. 3 State ..... Failed to pump; to work over, 4,400 ft.

HACKBERRY—CAMERON PARISH

Calcasieu Oil Co.'s No. 14 Watkins ..... Coring 2,920 ft.
Calcasieu Oil Co.'s No. 7 Valery ..... Drlg. gumbo 3,030 ft.
Cameron Oil Co.'s No. 2 Vincent, Old Hackberry ..... Aband. 3,455 ft.
Fraim Oil Co.'s No. 1 Duhon, Old Hackberry ..... Standing 4,384 ft.
Progressive Oil Co.'s No. 1 Little, Old Hackberry ..... Flowed 2,500 bbls. fluid, 15 per cent oil, 3,000-85 ft.
Rycade Oil Corp.-Humble O. & R. Co.'s No. 2 Gulf land, Old Hackberry ..... Pumping 3,974 ft.
Rycade Oil Corp.-Humble Oil & Refg. Co.'s No. 3 Gulf Land, Old Hackberry ..... Drlg. 890 ft.
The Texas Company's No. 5-B Calcasieu Lake, East Hackberry ..... Location.

JENNINGS—ACADIA PARISH

Cline, Smith & Cline's No. 9 Conklin, Section 46-9s-2w .. Drlg. 252 ft.
Fred Getty's No. 3 Jennings-Clemont ..... Location.
E. L. Meyers' No. 1 Clemont-Zigler (old well) ..... To work over 1,805 ft.
Port City Oil Co.'s No. 11 Syndicate Fee, Section 46-9s-2w ..... Drlg. 1,578 ft.
Reliable Oil Co.'s No. 2 Jennings-Heywood ..... Drlg. 1,469 ft.
Yount Lee Oil Co.'s No. 4 Crowley, northeast flank, Section 48-9s-2w ..... Coring 7,255 ft.

EDGERLY—CALCASIEU PARISH

Rex Petroleum Co.'s No. 9 Hunter (work-over) ..... Junked and aband. 3,774 ft.
Wilson-Broach's No. 3 Wilson (work-over) ..... Bailing 3,038 ft.

VINTON—CALCASIEU PARISH

Gulf Refining Co.'s No. 66 G. & N. Gray (old well) ..... To deepen.
Gulf Refining Co.'s No. 32 Star-Vincent (work-over) .... Tested salt water 3,968 ft.; standing.
Marrs McLean's No. 4 Gray (work-over) ..... Tested dry 1,768 ft.; standing.
Salt Dome Oil Co.'s No. 2 Shaw ..... Standing 1,643 ft.
Vinton Petroleum Co.'s No. 3 Matilda Gray ..... Flowing 1,400 bbls. 2,922 ft.
Vinton Petroleum Co.'s No. 14 Gray (work-over) ..... To deepen.

BAYOU BOUILLON—ST. MARTIN PARISH

Rycade Oil Corp.'s No. 4 Bouillon fee (old well) ..... To work over.
Rycade Oil Corp.'s No. 7 Bouillon Fee ..... Drlg. 3,480 ft.

STARKS—CALCASIEU PARISH

Gulf Refining Co.'s No. 15 Lutcher-Moore ..... Drlg. 5,212 ft.
Gulf Refining Co.'s No. 13 Industrial ..... Drlg. 5,758 ft.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 736 Fee ..... Gumbo 5,816 ft.
Union Sulphur Co.'s No. 746 Fee, Sec. 29-9s-10w ..... Rig.
Union Sulphur Co.'s No. 747 Fee, Sec. 29-9s-10w ..... Drlg. 300 ft.
Union Sulphur Co.'s No. 748 fee, Section 29-9s-10w ..... Drlg. 600 ft.

SWEET LAKE—CAMERON PARISH

Pure Oil Co.'s No. 7 Yount Lee ..... Fishing screen to deepen 5,426 ft.

ANSE LA BUTTE—ST. MARTIN PARISH

Yount Lee Oil Co.'s No. 5 Louisiana Pet. Co. ..... Drlg. gumbo 718 ft.

MISCELLANEOUS WILDCATS

TEXAS

AUSTIN COUNTY

Flanigan & Mewis' No. 1 Mewis, James P. Stevenson sur., east of Bellville ..... Drlg. sand and shale 3,538 ft.
Whittington et al's No. 1 Lass, 4 miles northwest of Bellville ..... Derrick.

BRAZORIA COUNTY

Thomas Faust et al's No. 4 fee ..... Derrick.
Shell Petroleum Corp.'s No. 4 Allen, Allen dome ..... Waiting orders; total depth 5,184 ft.
Empire Gas & Fuel Co.'s No. 3 Brock, Stratton Ridge .. Hard sand and lime 4,133 ft.
Humphreys Corp.'s No. 1 Bryan, Bryan Mound ..... Hard lime and sand 3,446 ft.; waiting blowout preventer.

CHAMBERS COUNTY

Layne et al's No. 1 Fitzgerald ..... Drlg. 502 ft.
Pure Oil Co.'s No. 2 Mayes, Lost Lake ..... Shut down high water 1,992 ft.
Pure Oil Co.'s No. 3 Mayes, Lost Lake ..... Shut down high water 1,871 ft.

FORT BEND COUNTY

Grayburg Oil Co.'s No. 1 Ranson ..... Location.
Humble Oil & Refg. Co.'s No. 1 Miller, Rosenberg ..... Drlg. gumbo 2,086 ft.
So. Texas Pet. Co.'s No. 1 Winkleman, Needville ..... Drlg. shale and sand 4,652 ft.

HARRIS COUNTY

Baldwin and associates' No. 1 Kitzman, Cypress ..... Drlg. sand and shale 3,996 ft.
Humble Oil & Refg. Co.'s No. 1 Irvin, Mykawa ..... Junked and aband. 3,810 ft.
Humble Oil & Refg. Co.'s No. 2 Irvin ..... Rigging.
Humble Oil & Refg. Co.'s No. 5 Warren, Hockley ..... Waiting casing cem. 4,772 ft.
Humble Oil & Refg. Co.'s No. 1 Woodburn, Genoa ..... Drlg. gumbo 2,230 ft.
Little York Oil Co.'s No. 1 Davis, Little York ..... Shut down 3,827 ft.
Paxton and associates' No. 1 Brubacker, Clodine ..... Aband. 1,146 ft.

Paxton & Pundt's No. 1 Brown, Wooster ..... Shut down 1,830 ft.
York & Robertson's No. 1 Garrett, Harris & Carpenter survey ..... Location.

JACKSON COUNTY

Wright Bros.' No. 2 Lea ..... Sand 2,670 ft.; to make drill stem test 2,663-70 ft.

JEFFERSON COUNTY

Bleakie Oil Co.'s No. 1 Tolliver, Dyches survey ..... Shut down 2,237 ft.
Gulf Production Co.'s No. 7 Bordages, Fannette ..... Coring 5,775 ft.
Gulf Production Co.'s No. 11 Thomas, Fannette ..... Flow 1,000 bbls. 33 grav. oil on ¼-in. choke; sand 5,665 ft.; pressure 1,400 pounds.
Nederland Oil & Dev. Co.'s No. 1 Young, Nederland ..... Shut down 2,100 ft.
River Oil Corp.'s No. 1 Ship Channel, Brown survey ..... Shut down; gumbo 1,721 ft.
Shell Petroleum Corp.'s No. 1 Heisig, Hampshire ..... Drlg. sticky shale and lime 5,261 ft.
The Texas Company's No. 1 Pipkin, Big Hill ..... Washing, gas sand 5,943 ft.
Vacuum Oil Co.'s No. 1 Herbert-Broussard, T. & N. O. survey No. 208 ..... Location.

LIBERTY COUNTY

Humbie Oil & Refg. Co.'s No. 5 Sterling, Moss Bluff .... Drlg. sticky shale 3,104 ft.
Pure Oil Co.'s No. 1 Liberty, Moss Bluff ..... Rig.
Republic Production Co.'s No. 1 Myslivec, Moore survey .. No report.

MATAGORDA COUNTY

Crossland and associates' No. 1 Hawkins, Shepherds Mott. Heaving shale 5,260 ft.

MONTGOMERY COUNTY

Cullen and associates' No. 1 Chase, near Westfield ..... Rigged up.
Harper Drilling Co.'s No. 1 Gay, W. Landrum survey .. No report.
Kelley-Baker et al's No. 1 Juerges ..... Location.

ORANGE COUNTY

Veteran Oil Co.'s No. 1 Reed, A. Nelson survey ..... Coring 4,125 ft.

WALLER COUNTY

The Texas Company's No. 1 Young, Irons & Groce survey ..... Aband. 4,011 ft.

REFUGIO—REFUGIO COUNTY

Houston Gulf Gas Co.'s No. 4 Ryals..... Drlg. sticky shale 3,385 ft
Houston Gulf Gas Co.'s No. 9 Lambert..... Drlg. sticky shale 560 ft.
Houston Gulf Gas Co.'s No. 6 Shelly..... Drlg. shale 3,630 ft.
Houston Gulf Gas Co.'s No. 3 Adkins..... Drlg. gumbo 3,021 ft.
Houston Gulf Gas Co.'s No. 2 Rooke..... Fishing drill pipe.
Houston Gulf Gas Co.'s No. 4 Holmes Heard..... Comp... gas pressure 1,050 pounds 3,646 ft.
Houston Gulf Gas Co.'s No. 1 Buckley ..... Derrick.
Mission Drlg. Co.'s No. 1 Shelly..... Casing cem. 3,628 ft.
Mission Drlg. Co.'s No. 1 Huddleston..... Fishing drill pipe 3,672 ft.
Mission Drlg. Co.'s No. 1 O'Brien..... Drlg. 1,600 ft.
Mission Drlg. Co.'s No. 1 Powers..... Fishing bit 4,050 ft.
Mission Drlg. Co.'s No. 1 J. F. B. Heard..... Bailing.
Benedum & Trees' No. 4 Clint Heard..... Oil sand 3,701 ft; to test; cored sandy shale showing gas 3,-693 ft.
Sun Oil Co.'s No. 2 Rea..... Casing cem. 3,655 ft.
Saxet Co.'s No. 5 Clint Heard..... To test oil and gas sand 5,006-07 ft.
Saxet Co.'s No. 8 Clint Heard..... Rigged up.
Houston Oil Co.'s No. 6 Pratt-Hewitt-Rooke..... Drlg. gumbo 2,790 ft.
Houston Oil Co.'s No. 1 F. Rooke..... Casing cem. 3,680 ft.
Houston Oil Co.'s No. 6 Wilson Heard..... Oil sand 3,692 ft; cmtd. 8¼-in. csg.
Houston Oil Co.'s No. 7 Wilson Heard..... Casing cem. 3,691 ft.
Houston Oil Co.'s No. 12 Fannie Heard..... Drlg. 1,000 ft.

SOUTH LOUISIANA
ASCENSION PARISH

Bellettelene Oil Co.'s No. 1 Desiere Breaux, Darrow..... Drlg. 996 ft.
Big Dome Dlg. & Dev. Co.'s No. 1 Reardom, Darrow .... Drlg. 4,566 ft.
Triumph Oil Corp.'s No. 2 Lacey, Sec. 29-10s-4e ..... Rebuilding derrick to fish stuck drill pipe 2,515 ft.

CALCASIEU PARISH

Wilfred LaHay's No. 2 James, Section 14-10s-13w ..... Shut down 3,365 ft.
J. O. Davis' No. 1 Mims, Section 20-9s-7w ..... Drlg. gumbo 4,602 ft.

CAMERON PARISH

Shell Petroleum Corp.'s No. 11 Watkins, Black Bayou .. Core lime and calcite 1,228 ft.
The Texas Company's No. 3-A Calcasieu Lake, Calcasieu Lake dome ..... Aband. 3,581 ft.

EVANGELINE PARISH

The Texas Company's No. 1 Guillory, Pine Prairie ..... Drlg. hard sand 2,212 ft.

IBERIA PARISH

The Texas Company's No. 3-A Vermillion Bay ..... Aband. 4,694 ft.
Gulf Refining Co.'s 9-Z State, Loreauville ..... Drlg. 846 ft.

IBERVILLE PARISH

Shell Petroleum Corp.'s No. 3 Wilbert, White Castle .... Drlg. sand and sticky shale 5,297 ft.
Standard Oil Co.'s No. 2 Wilbert, Bayou Blue ..... Drlg. 3,522 ft.
Standard Oil Co.'s No. 3 Wilbert, Bayou Blue ..... Canal dredged to location.
Standard Oil Co.'s No. 1 Schwing, Bayou Blue ..... Drlg. 4,767 ft.
Standard Oil Co.'s No. 2 Schwing, Bayou Blue ..... Derrick.
Standard Oil Co.'s No. 3 Schwing, Bayou Blue ..... Location.
Standard Oil Co.'s No. 4 Schwing, Bayou Blue ..... Location.
Standard Oil Co.'s No. 5 Schwing, Bayou Blue ..... Derrick.

PLAQUEMINE PARISH

The Texas Company's No. 1 Garden Island Bay, Section 107-23s-32e ..... Salt, abandoned 2,117 ft.
Gulf Refining Co.'s No. 1 Morris & Rose, Section 26-21s-30e ..... Location and rig abandoned.

ST. BERNARD PARISH

St. Bernard Oil & Gas Co.'s No. 1 fee, Sec. 15-14s-15e.... Location.

ST. JAMES PARISH

Convent Oil Co.'s No. 2 Reynaud, Sec. 1-12s-4e ..... Location.

ST. LANDRY PARISH

Gulf Refining Co.'s No. 1 Gaudet, Point Barre ..... Drlg. shale 3,803 ft.
The Texas Company's No. 2 Botney Bay, Point Barre.... Fishing 3,552 ft.

ST. MARTIN PARISH

Ohio Oil Co.'s No. 3 Martin, Hager dome ..... Standing 4,490 ft.
The Texas Company's No. 1 Fee, Hager Dome ..... Shut down; high water 1,233 ft.
The Texas Company's No. 2 St. Martin, Hager ..... Rig standing; high water.

ST. TAMMANY PARISH

St. Tammany Oil Co.'s No. 2 Fritchie, Sec. 35-8s-14e .... Oil sand 1,895-1,903 ft.

TANGIPAHOA PARISH

Joan Development Co.'s No. 1 Hilton, Sec. 20-9s-9e ..... Gumbo 2,432 ft.

TERREBONNE PARISH

Southern Gas Co.'s No. 1 Waterproof, Houma ..... Testing gas sand 1,652 ft.
The Texas Company's No. 1 L. L. & E., Four Isle Bayou .. Drlg. sand and gravel 400 ft.; shut down temporarily.
The Texas Company's No. 1-A Timballer Bay, Section 19-23s-20e ..... Drlg. gumbo 1,775 ft.
The Texas Company's No. 2-A Dog Lake Bayou, 400 ft. south of No. 1 ..... Location.
The Texas Company's No. 1-B Lake Pelto, Section 8-23s-18e ..... Drlg. hard sand 888 ft.
The Texas Company's No. 1 Taylor, East Bay Junop Dome ..... Driving piling.
The Texas Company's No. 2-A Lake Barre, Section 30-21s-20e ..... Location.
The Texas Company's No. 2B Bay Coon Road, Sec. 17-22s-18e ..... Location.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 76)

Marland Prod. Co.'s No. 1 Burnett-L, 440 ft. S and 1,-320 ft. NW NE cor. Sec. 79, Blk. 4, I.&G.N. Sur. .... T.D. 3,180 ft; P.B. 2,640 ft; testing gas.
Magnolia Pet. Co.'s No. 7 fee, 990 ft. from W line, 890 ft. from S line SE, Section 91, Blk. 4, I.&G.N. Sur. .. Rig.
McConnell O. & G. Co.'s No. 1 McConnell, 330 ft. from N line, 330 ft. from E line W½ NE, Sec. 65, Blk. 4, I.&G.N.R.R. Sur. ..... Drlg. 2,215 ft.
Midwest Expltn. Co.'s No. 1 Cooper, 330 ft. each way from SE cor. W½ NW, Sec. 5, Blk. 9, H.&G.N. Sur. .. Drlg. 2,175 ft.
Midwest Expltn. Co.'s No. 2 Cooper, 990 ft. from S line and 330 ft. from W line W½ NW, Sec. 5, Blk. 9, I.&G.N. Sur. ..... Drlg. 320 ft.
Morris et als' No. 1 Barnard, NW cor. SW SE, Sec. 44.. 2,000,000 ft. gas 2,752-62 ft; drlg. 3,200 ft; show oil.
Ryan Oil Co.'s No. 3 Black, 990 ft. from S line, 330 ft. from E line NE, Sec. 111, Blk. 4, I.&G.N.R.R. Sur. .. Drlg. 480 ft.
Ryan Oil Co.'s No. 4 Block, 990 ft. from N line and 330 ft. from E line NE, Sec. 111, Blk. 4, I.&G.N. Sur. .. Rig.
Skelly Oil Co.'s No. 15 Schafer, 330 ft. from S line and 330 ft. from W line NE, Sec. 198, Blk. 3, I.&G.N. ... Drlg. 370 ft.
Stubblefield et als' No. 1 Garner, 330 ft. from S and E lines SE, Sec. 104, Blk. 4 ..... Spud and S.D.
Timmis et als' No. 2 Garner, 330 ft. from N line and 330 ft. from E line SW SW, Sec. 113, Blk. 4, I.&G.N. ... Rigging up.
Travis et als' No. 1 D. A. Harrel, C NE NE, Sec. 162, Blk. 7, I.&G.N. Sur. ..... 250,000 ft. gas from 3,520-30 ft; drlg. 3,750 ft.
Ware et als' No. 1 Ware, 990 ft. S and 400 ft. E NW cor. Sec. 18, Blk. 3, A.B.&M. Sur. ..... S.D. 5,025 ft.

CASTRO COUNTY

Colorado O. & R. Co.'s No. 1 M. Slemmons, SW cor. Sec. 73, Blk. M-17, B.S.&F. Sur. ..... Rig blown down.
Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE, Sec. 333, Blk. M-6, S.K.&K. Sur. ..... S.D. 510 ft. for csg.

CHILDRESS COUNTY

C. L. Sloane et als' No. 1 B. P. Smith, Sur. 49, F. P. Knott lands ..... S.D. 4,340 ft.

COCHRAN COUNTY

Marland Prod. Co.'s No. 1 Slaughter-A, 330 ft. from W and 430 ft. from S lines, League 130, Carson County School land ..... Fish. 1,845 ft.

COTTLE COUNTY

Explin. Co.'s No. 1 Richards ..... S.D. 3,535 ft. for csg.
Explin. Co.'s No. 4 Matador Land & Cattle Co., C, Sec. 46, J. H. Stephens Sur. ..... S.D. 3,227 ft.
Sun Oil Co.'s No. 1 T. B. Yarborough, 485 ft. S and 2, 460 ft. E NW cor. Sec. 551, Blk. H, W.&N.W. Sur. .. Drlg. 4,115 ft.

DONLEY COUNTY

Blue Bonnett Oil Co.'s No. 1 Ball, 1,075 ft. from N line, 985 ft. from E line, Sec. 22, Blk. E, D.&P.R.R. Sur. .. Drlg. 512 ft.
Marine Oil Co.'s No. 1 Sawyer, C SW, Sec. 5, Blk. G, G.C.&S.F. Sur. ..... Drlg. 2,525 ft.

GRAY COUNTY

Anderson et als' No. 1 Heitholt, C NE SW, Sec. 152, Blk. 3, I.&G.N. Sur. ..... 2,000,000 ft. gas from 2,685-2,800 drlg. 3,092 ft; 15,000,000 ft. gas 2,810-2,940 ft.
Amagray Oil Co.'s No. 2 Chapman, 330 ft. S and W NE cor. W½ SW, Sec. 9, Blk. 26, H.&G.N. Sur. ..... Drlg. 2,565 ft; show gas 2,025-2,-130 ft. and 2,230-50 ft; 30,000,-000 ft. gas 2,315-20 ft.
B. S. Arnold's No. 1 J. E. Mingale, C E 160 ac., Sec. 212, Blk. B-2, H.&G.N. Sur. ..... 30,000,000 ft. gas from 2,688-90 ft; S.D. 2,690 ft.
Barnsdall Oil Corp.'s No. 1 M. B. Davis, NW cor. W½, Sec. 9, Blk. 1, A.C.H.&B. Sur. ..... S.O. 2,820 ft; show gas 2,836 ft; S.O. 2,980 ft; plugged back to 2,883 ft. to shoot; T.D. 2,110 ft., shot 150 qts. from 2,800-60 ft; putting on pump; C.O. 3,010 ft.
British American Oil Co.'s No. 1 Purviance, 330 ft. each way from NW E 160 ac., Sec. 61, Blk. B-2, H.&G.N.. Set. 8-in. at 2,767 ft.
Champlin Ref. Co. and Danciger's No. 1 Cook Faulkner, 330 ft. each way from SW cor. W 120 ac., E 200 ac., Sec. 30, Blk. B-2, H.&G.N. Sur. ..... Drlg. 2,250 ft.
Champlin Ref. Co.'s No. 2 Jackson, 330 ft. each way from SE cor., W 100 ac., Sec. 60, Blk. B-2, H.&G.N.. Drlg. 1,250 ft.
Crabtree Drlg. Co.'s No. 1 B. F. Talley, SW NE, Sec. 114, Blk. M-2, B.S.&F. Sur. ..... S.D. 2,740 ft.
Cockrell-McElroy Oil Co.'s No. 2 McConnell, 330 ft. S and E of NW cor. W½ SW, Sec. 174, Blk. 3, I.&G. N.R.R. Sur. ..... Drlg. 2,960 ft; show oil.
Constantine et als' No. 1 Dial, 330 ft. S and E of NW cor. W½ NW, Sec. 32, Blk. 25, H.&G.N. Sur. ..... S.D. 2,965 ft; encountered salt wtr.
Danciger O. & R. Co.'s No. 1 H. K. Beck, 330 ft. S and E NW cor. NW, Sec. 28, Blk. B-2, H.&G.N. Sur. .... Show gas 2,190 ft; drlg. 2,874 ft; flowed 95 bbls. first 24 hrs; T. P. 2,869 ft.
Danciger O. & R. Co.'s No. 4 Morse, 330 ft. S and E NW cor. NW SW, Sec. 1, Blk. 26, H.&G.N. Sur. ..... U.R. 1,675 ft.
Danciger's No. 2 Shell-Shaw, 330 ft. each way from SE cor. E½ SW, Sec. 5, Blk. 1, A.C.H.&B. Sur. ..... Drlg. 2,275 ft.
Danciger et als' No. 1 Sheridan, SE cor. Sec. 184, Blk. B-2, H.&G.N.R.R. Sur. ..... Temp. abd.
Delaney and Associates Oil Co.'s No. 8 Jackson, 990 ft. S and 330 ft. E NW cor. E½ SW, Sec. 88, Blk. B-2, H.&G.N.R.R. Sur. ..... Spudding.
Empire G. & F. Co.'s No. 1 R. M. Brown, C SE, Sec. 238, Blk. B-2, H.&G.N. Sur. ..... Set 8-in. csg. 2,441 ft.
Sines & Reiger's formerly Eslick et als' No. 1 Mrs. J. A. Hopkins, NW cor. W 80 ac. of SW, Sec. 84, Blk. B-2, H.&T.C. Sur. ..... Fish. pipe 3,206 ft.
Gardner Bros. and Collins' No. 2 Saunders, 350 ft. from N on center line of W 68 of W½ of E½ of J. G. Eustice Sur. ..... Location temp. abd.
Gulf Prod. Co.'s No. 7-B Bowers, 990 ft. N and 330 ft. W of SE of 160-ac. lease, Sec. 89, Blk. B-2, H.&G. N. Sur. ..... Drlg. 2,968 ft; swbd. 30 bbls. per hour.
Gulf Prod. Co.'s No. 1 Jackson, 295 ft. N and 305 ft. E of SW cor. W½, Sec. 62, Blk. B-2, H.&G.N.R.R. Sur. ..... Show oil 2,635-40 ft; 2,000,000 ft. gas 2,565 ft; drlg. 2,890 ft; 7,-000,000 ft. gas.
Independent O. & G. Co.'s No. 1 Hollenbeck, 990 ft. each way from NE cor. NE, Sec. 176, Blk. 3, I.& G.N.R.R. Sur. ..... 5,000,000 ft. gas from 2,428-83 ft; fish. 2,820 ft.
Magnolia Pet. Co.'s No. 1 Wright, 330 ft. S and W lines S½ SW, Sec. 13, Blk. 3, I.&G.N. Sur. ..... Location.
McLain Oil Co.'s No. 1 Back, 1,000 ft. from W line and 330 ft. from N line, NW, Sec. 24, Blk. 25, H.&G.N. Sur. ..... 1,000,000 ft. gas 2,105-10 ft. and es.imated 3,000,000 ft. gas 2,202-08 ft; S.D. 2,642 ft; show oil 2,-565-90 ft.
Marland Prod. Co.'s No. 3 Finley-Brown, 1,224 ft. from E line, 330 ft. from N line, Sec. 32, Blk. B-2, H.& G.N. Sur. ..... Drlg. 300 ft.
Nabob Oil Co.'s No. 2 Morse, 660 ft. from W line and 330 ft. from S line SW, Sec. 67, Blk. 25, H.&G.N. R.R. Sur. ..... S.D. 1,970 ft.
Operators Oil Co.'s No. 2 Cook-Faulkner, 903 ft. from S line and 330 ft. from W line of W 90 ac., Sec. 30, Blk. B-2, H.&G.N. Sur. ..... Drlg. 2,480 ft.
Operators Oil Co.'s No. 3 Cook-Faulkner, 330 ft. each way from SE cor. W 90 ac., Sec. 30, Blk. B-2, H. &G.N. Sur. ..... Drlg. 2,140 ft.
Osborn et als' No. 1 Morse-H, 330 ft. N and E SW cor. S½ NE, Sec. 1, Blk. 26, H.&G.N.R.R. Sur. ..... Location.
Phillips Pet. Co.'s No. 1 Jackson, 330 ft. each way from NE cor. NE, Sec. 58, Blk. B-2, H.&G.N.R.R. Sur. Drlg. 2,640 ft.
Phillips Pet. Co.'s No. 5 Jackson, 330 ft. S and 990 ft. E NW cor. S½ NE, Sec. 88, Blk. B-2, H.&G.N. Sur. .. Drlg. 940 ft.

Phillips Pet. Co.'s No. 2 Palmer, 903 ft. from S line and 330 ft. from E line of E 83.4 ac., Sec. 31, Blk. B-2, H.&G.N. Sur. ..... Drlg. 2,400 ft.
Phillips Pet. Co.'s No. 3 Palmer, 330 ft. each way from SW cor. E 83.1 ac., Sec. 31, Blk. B-2, H.&G.N. Sur. .. Drlg. 2,300 ft.
Phillips Pet. Co.'s No. 4 Palmer, 330 ft. N and W of E 831 ac., Sec. 31, Blk. B-2 ..... Bldg. rig.
Panhandle Ref. Co.'s No. 1 Saunders, 330 ft. S and E NW cor. E½ NE, Sec. 3, Blk. 1, A.C.H.&B. Sur. .... 15,000,000 ft. gas 2,150-2,320 ft; show oil 2,663 ft; fish. 2,781 ft.
Panhandle Ref. Co.'s No. 2 Saunders, 330 ft. S and W NE cor. E½ NE, Sec. 3, Blk. 1, A.C.H.&B. Sur. .... Drlg. 2,680 ft.
Scott Drlg. Co. et als' No. 1 Chapman, 330 ft. N and E SW cor. S½ NE, Sec. 69, Blk. 25, H.&G.N. Sur. ..... S.D. 2,070 ft.
Ray Massie's No. 4 Chapman, 330 ft. each way from NW SE SW, Sec. 51, Blk. 25, I.&G.N. Sur. ..... Drlg. 1,720 ft.
Shamrock Co.'s No. 3 Clayton, 150 ft. from W and 330 ft. from N line, E 277.4 ac., Sec. 50, Blk. 25, H.&G. N.R.R. Sur. ..... Drlg. 2,650 ft.
Shamrock Co.'s No. 1 Clayton-B, 730 ft. from N and 150 ft. from W line E½ of E 277.4 ac., Sec. 50, Blk. 25 ..... Set 8-in. csg. 2,158 ft; drlg.
Shell Pet. Corp.'s No. 3 McConnell, 330 ft. N and W SE cor. Sec. 174, Blk. 3, I.&G.N.R.R. Sur. ..... Drlg. 400 ft.
Sherwood et als' No. 1 Gething, 330 ft. N and W SE cor. N½ NE, Sec. 14, Blk. A-9, H.&G.N. Sur. ..... Location.
Skelly Oil Co.'s No. 1 Jackson, 330 ft. from S and W lines E½, Sec. 62, Blk. B-2, H.&G.N.R.R. Sur. ..... Bldg. rig.
Skelly Oil Co.'s No. 2 Jackson, 330 ft. S, 2,990 ft. W of W 160 ac., Sec. 90, Blk. B-2 ..... Bldg. rig.
Skelly Oil Co.'s No. 3 Jackson, 330 ft. from S and E lines of W 160 ac., Sec. 90, Blk. B-2, H.&G.N.R.R. Sur. ..... Bldg. rig.
St. Clair Oil Co.'s No. 1 Dial, 330 ft. S and W NE cor. SE, Sec. 10, Blk. 25, H.&G.N.R.R. Sur. ..... Cellar.
St. Clair Oil Co.'s No. 1 Rowe, Sec. 32, Blk. R ..... S.D. 3,490 ft. with H.F.W.
St. Clair Oil Co.'s No. 1 L. S. Stockton, SE cor. Sec. 35, W. R. Lee Sur. ..... Spudded and S.D.
The Texas Co.'s No. 6 Bowers, 270 ft. W and 330 ft. N SE cor. E½, Sec. 89, Blk. B-2, H.&G.N.R.R. Sur. .... Show dll 2,780 ft; C.O. 2,940 ft; 1,400 ft. oil in hole 2,807-15 ft.
The Texas Corp.'s No. 10 Bowers, 330 ft. from N and E lines of E½, Sec. 89 ..... Bldg. rig.
The Texas Corp.'s No. 11 Bowers, 330 ft. S, 990 ft. E, of E½, Sec. 89 ..... Bldg. rig.
The Texas Corp.'s No. 12 Bowers, 330 ft. from N and 330 ft. from W of NE, Sec. 63, Blk. B-2 ..... Bldg. rig.
The Texas Corp.'s No. 13 Bowers, 990 ft. from N and 330 ft. from W line E½, Sec. 89, Blk. B-2, H.&G. N.R.R. Sur. ..... Bldg. rig.
The Texas Co.'s No. 2 B. Bull, 990 ft. S and E NW, Sec. 2, Blk. B-2, H.&G.N.R.R. Sur. ..... Drlg. 2,440 ft.
The Texas Co.'s No. 2 Chapman-B, 990 ft. N and E SW cor. Sec. 50, Blk. A-9, H.&G.N.R.R. Sur. ..... Drlg. 2,860 ft.
The Texas Corp.'s No. 4 Cook-Faulkner, 1,973 ft. from W line line and 330 ft. from N line of W 160 ac., Sec. 29, Blk. B-2, H.&G.N. Sur. ..... Drlg. 1,839 ft.
The Texas Corp.'s No. 3 Cook-Faulkner, 1,313 ft. from W line and 380 ft. from N line of W 160 ac., Sec. 29, Blk. B-2, H.&G.N.R.R. Sur. ..... Drlg. 255 ft.
The Texas Co.'s No. 5 McLarty-A, 330 ft. S and E of NW cor. Sec. 2, Blk. 1, A.C.H.&B. Sur. ..... Show gas 2,235 ft; drlg. 2,645 ft.
The Texas Co.'s No. 2 McLarty-B, at center of J. M. Rose Sur. ..... Rig.
The Texas Co.'s No. 2 Shaw, 1,000 ft. from S and 330 ft. from W line E½, Sec. 5, Blk. 1, A.C.H.&B. Sur. .. S.D. 2,320 ft.
The Texas Co.'s No. 4 Williams, 330 ft. each way from NE NE NW, Sec. 6, Blk. 1, A.C.H.&B. Sur. ..... Drlg. 535 ft.
Wilcox-Pampa Oil Co.'s No. 7 Comb-Worley, 330 ft. N and E SW cor. SE, Sec. 60, Blk. 3, I.&G.N. Sur. .... Drlg. 2,150 ft.
Wilcox-Pampa Oil Co.'s No. 8 Comb-Worley, 330 ft. NW SE SE, Sec. 60, Blk. 3, I.&G.N. Sur. ..... Rigging up.

HOCKLEY COUNTY

World Oil Co.'s No. 1 Ellwood, 320 ft. from N and W lines, League 7, Wilbarger County School lands; elevation 3,363 ft; contract depth 5,000 ft. ..... Drlg. 1,550 ft.

HARTLEY COUNTY

Amarillo Oil Co.'s No. 9 Lee Bivins "A," C NW, Sec. 6, Blk. 21 ..... Show oil 3,780 ft; C.O. 4,004 ft; 100,000 ft. wet gas at 3,990 ft.

HUTCHINSON COUNTY

Amarillo Oil Co.'s No. 2 Ingerton-A, 1,650 ft. from N line, 1,071 ft. from E line, Sec. 41, H.&T.C.R.R. Sur. .. Fish. 1,100 ft.
Holmes et als' No. 2 Quinn, 990 ft. from S line and 330 ft. from E line SW, Sec. 7, Blk. 9, I.&G.N. Sur. .... S.D. 240 ft.
Huey et als' No. 3 Smith et al, 330 ft. from N and 600 ft. from W of S 40 ac. of E 100 ac., SE, Sec. 12, Blk. Y ..... Rigging up.
Marland Oil Co.'s No. 2 Reimer, 3,753 ft. S and 450 ft. E of NW cor., Sec. 31, Blk. 47, H.&T.C. ..... Location.
McMan O. & G. Co.'s No. 2 Sanford, 300 ft. from W line and 315 ft. from S line N 274 ac., Sec. 83, Blk. 46, H.&T.C. Sur. ..... Drlg. 620 ft.
Oil Operators Trust Co. and Marland's No. 2 J. M. Stanford-B, Sec. 82, Blk. 46, H.&T.C. Sur. ..... S.D. 3,039 ft.
O. B. Penney's No. 2 Johnson Bros., 330 ft. from S line, 330 ft. from W line W½ NE, Sec. 35, Blk. Y, A.&B. Sur. ..... Drlg. 690 ft.
Phillips Pet. Co.'s No. 1 Johnson Bros., 330 ft. from N and W lines NW, Sec. 34, Blk. Y, A.&B. Sur. ..... Set 10-in. csg. 1,955 ft.
Phillips Pet. Co.'s No. 4 Johnson, Sec. 28, Blk. Y, A. &B. Sur. ..... Rigging up.
Phillips' No. 1 Sanford-Glass, 660 ft. S and E of NW cor. S 80 ac. of N 160 ac. of S 320 ac., Sec. 80, Blk. 46, H.&T.C. Sur. ..... U.R. 8-in. at 2,570 ft.
Phillips Pet. Co.'s No. 6 (Florence), 330 ft. each way from S and W lines, E½ ..... Spudding.
Prairie O. & G. Co.'s No. 4 Shaw, 330 ft. S and 990 ft. W NE cor., Sec. 27, Blk. Y ..... Location.
Skelly Oil Co.'s No. 8 Whittenburg, 330 ft. from S and 2,230 ft. from W, Sec. 22, Jameson Sur. ..... Bldg. rig.
Skelly Oil Co.'s No. 7 Whittenburg, 330 ft. from S and 1,570 ft. from W lines, Sec. 22, Jameson Sur. ..... Spudding.

KING COUNTY

Huff Oil Co.'s No. 1 Martin, 1,320 ft. from N line and 1,320 ft. from E line, Sec. 171, Blk. F, H.&T.C. Sur. .. Rig.

LAMB COUNTY

Dan Freed et als' No. 1 Ellwood, CWL, Sec. 9, Blk. T, T. A. Thompson Sur. ..... Drlg. 1,150 ft.

LIPSCOMB COUNTY

Brown et als' No. 1 Box T Ranch, SW NE, Sec. 612, H.&T.C. Sur. ..... S.D. 3,128 f..
Okla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ..... Fish. 4,452 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles Ranch ..... Small show oil 1,133-40 ft; sand; fish. 4,167 ft.

MOORE COUNTY

Amarillo Oil Co.'s No. 1 Read-A, C NW, Sec. 14, Blk. 13-12, D.&P. Sur. ..... Bldg. rig.
Amarillo Oil Co.'s No. 1 Perkins-A, 330 ft. each way out of NW cor. NE, Sec. 76, Blk. 3 ..... Bldg. rig.
Amarillo Oil Co.'s No. 2 Warrick, C S 160 ac., Sec. 92, Blk. 46, H.&T.C. Sur. ..... T.D. 2,910 ft; 60,000,000 ft. gas from 1,580-2,910 ft; fish. 2,910 ft.
Barnsdall Oil Co.'s No. 1 Harrison, 330 ft. from N line and 330 ft. from E line S½ NE, Sec. 5, Blk. M-2 .. Standardizing 2,830 ft.
Dana O. & G. Co.'s No. 1 Anthony, C NW, Sec. 260, Blk. 44, H.&T.C.R.R. Sur. ..... Rig.
Dana O. & G. Co.'s No. 1 Road-A, C NW, Sec. 14, Blk. B-12 ..... Location.
Fritch O. & G. Co.'s No. 1 Lee Burns, C NE 40 ac. of N 160 ac., Sec. 4, Geo. Mahan Sur. ..... Spudded and S.D.
Phillips Pet. Co.'s No. 1 Taylor, 330 ft. N and E SW cor. E½ NW cor. Sec. 244, Blk. 3-T T.&N.O. Sur. .... 5,000,000 ft. gas from 2,825-2,935 ft; 10,000,000 ft. gas 3,020 ft; 20,000,000 ft. gas 3,040 ft; drlg. out plug 3,238 ft.
Phillips' No. 1 Wilson, 330 ft. each way out of NW cor. S½ SE, Sec. 157, Blk. 3-T ..... Drlg. 1,470 ft.
Skelly Oil Co.'s No. 8 Armstrong & Byrd, 2,920 ft. S and 3,752 ft. of NW cor. Proctor Sur. ..... Drlg. 1,500 ft.
Skelly Oil Co.'s No. 9 Armstrong & Byrd, 2,220 ft. S and 930 ft. E NW cor. Proctor Sur. ..... Drlg. 935 ft.

MOTLEY COUNTY

Explin. Co.'s No. 5 Matador, C, Sec. 45, Blk. J-B, C. B.&C.N.G.R.R. Sur. ..... Rigging up.
Explin. Co.'s No. 6 Matador, 330 ft. from N line and 330 ft. from E line, Sec. 132, Blk. M ..... S.D. 529 ft.
Matador Oil Corp.'s No. 1 Owen, C NE, Sec. 10, Blk. G, B.&B. Sur. ..... Rig.

RANDALL COUNTY

W. H. Patterson's No. 1 Palo Duro, Sec. 60, Blk. K-14 .. Drlg. 1,146 ft.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Ledrick, Sec. 7, Blk. 5-A..... S.D. 5,975 ft.

WHEELER COUNTY

Anderson's No. 1 Meiners, C SW SE, Sec. 71, Blk. 17, H.&G.N.R.R. Sur. ..... Drlg. 1,015 ft.
Angus et als' No. 1 Linkey, C NE NW, Sec. 126, Blk. 23.. Rigging up.
Byrens et als' No. 1 Johnson, SW cor. NE, Sec. 88, Blk. A-5, H.&G.N. Sur. ..... S.D. 2,920 ft.
Gillespie et als' No. 1 McMurtrey, C NW SE, Sec. 67, Blk. 17, H.&G.N. Sur. ..... U.R. 8-in. csg. 1,285 ft.
Magnolia Pet. Co.'s No. 1 Trostle, C 8½ NW SW, Sec. 130, Blk. 23, H.&G.N.R.R. Sur. ..... Drlg. 1,691 ft.
L. W. Rook's No. 2-A Smock, C SW SE, Sec. 5, Blk. 24, H.&G.N. Sur. ..... Temp. abd.
Upham Gas Co.'s No. 2 Gooch, 330 ft. from S and E lines N½ SE, Sec. 81, Blk. 23 ..... Drlg. 550 ft.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 75)

Mid-Kansas Oil Co.'s No. 1 W. E. Lackey, 330 ft. N and E of SW cor. Sec. 272, Blk. 1-A, H.&T.C. ..... Pay 3,755-56 ft.; 6⅝-in. casing set 3,461 ft.; fishing at 3,785 ft.
Ray E. McCamey et al's No. 1 McCutchen, 2,300 ft. S and 785 ft. W of NE cor. of T. J. Hines Sur. No. 4 .. Shut down 2,405 ft.

CONCHO COUNTY

Duffy et al's No. 1 Gilliam, 1,520 ft. N and 1,120 ft. W of SE cor. Sec. 21, Blk. 10, H.&T.C.R.R. ..... Spudded and shut down.
Fred Spratt's No. 1 Bryson, Sec. 30, 150 ft. from N and W cor. ..... Location.
Jones & Leiner's No. 1 Jones, 420 ft. S and 15 ft. E of NW cor. John G. Reh Sur. No. 1,878 ..... Total depth 1,790 ft.; top lime 1,770 ft.; top pay 1,775-80 ft.; 18 ft. oil in hole; to test.

CRANE COUNTY

Duffey & Skelly's No. 1 University, 2,310 ft. from S, 330 ft. from E Sec. 45, Blk. 30, University Land .... Location.
Gulf Prod. Co.'s No. 7 Waddell, Sec. 10, Blk. B-23, 2,640 ft. from S, 330 ft. from W ..... Top salt 1,108 ft.; slight show gas 2,285 ft.; 1,000,000 ft. gas at 3,065 ft.; drlg. 3,250 ft.; 3,000,000 ft. gas.
Prairie Oil & Gas Co.'s No. 7 University, 330 ft. from N, 330 ft. from W Sec. 39, Blk. 30 ..... Location.
Prairie Oil & Gas Co.'s No. 8 University, 330 ft. from S, 330 ft. from W Sec. 39, Blk. 30 ..... Location.
Tidal Oil Co.'s No. 2 University, 330 ft. from E, 330 ft. from S Sec. 39, Blk. 30 ..... Location.
Tidal Oil Co.'s No. 9 University-I, 1,320 ft. from E, 771 ft. from S Sec. 43, Blk. 30 ..... Drlg. 500 ft.

CROCKETT COUNTY

Eppenaur et al's No. 2 Noelke, 500 ft. N and 1,250 ft. E of SE cor. Sec. 64, Blk. 1, I.&G.N.R.R. Sur. ..... Shut down 565 ft.
Lewis & Daniels' No. 1 Pecos River Bed, 19 yards S and 37 degrees E of NW cor. Sec. 33, Blk. 1, I.&G.N. Sur.. Shut down 1,002 ft.
W. W. Donnelly & Young's No. 1 Shannon, SW SW SE Sec. 42, Blk. BB, T.C.R.A. Sur. ..... Shut down 745 ft.
W. W. Donnelly & Young's No. 1 Middlebuster, C Sec. 11, Blk. 9, D.&S.E. Sur. ..... 7,000,000 ft. gas at 1,663 ft.; shut down 1,755 ft.
W. A. Moncrief et al's No. 1 Massie, 1,170 ft. N and 1,320 ft. E of SW cor. Sec. 47, Blk. UV, G.C.&S.F. Sur. ..... 3,000,000 ft. gas 1,198 ft.; shut down 1,233 ft.; rig burned.
Taylor-Link's No. 3 Powell, 1,000 ft. S of No. 2, Sec. 52, Blk. BB, E.L.&R.R. Sur. ..... Location.

CULBERSON COUNTY

Deep Rock Oil Co.'s No. 3 Kloh, 380 ft. N and 1,388 ft. W Sec. 39, Blk. 59 ..... Moving in machine.
Hickey & Stiver's No. 1 C. O. Finley, 600 ft. N and 1,980 ft. W Sec. 20, Blk. 82 ..... Small oil show 1,331 ft.; shut down 2,260 ft. for 30 days.
West Coast Oil & Exploration Co.'s No. 1 McGregor, C NW Sec. 14, Blk. 81 ..... Total depth 720 ft.; straightening crooked hole.
Scott & Dittman's No. 1 Miller, 1,160 ft. N and 2,480 ft. E Sec. 1, Blk. 97, Public School Land ..... Rainbow 1,056 ft.; 300 ft. sulphur water 1,725 ft.; drlg. 2,316 ft.; gas show and 2 bbls. salt water per hour at 2,177 ft.

ECTOR COUNTY

Anderson's No. 1 fee, 1,320 ft. E along N line Sec. 19, and 150 ft. N at right angles with line Sec. 18, Blk. B-16, Public School Land ..... Location.

EL PASO COUNTY

Sillex's No. 1 Malone, 2,200 ft. SW and NW Sec. 46, J. M. Day Sur. ..... Shut down 1,010 ft.

EDWARDS COUNTY

A. M. Griffith's No. 1 Wardlow, Sec. 60, V-8, J. C. Clift Sur. ..... Shut down 2,050 ft.

FISHER COUNTY

Bickerstaff et al's No. 1 McWhirter, 2,640 ft. E and 150 ft. N of SW cor. of Sec. 295, Blk. 2, H.&T.C. Sur. ... Shut down 2,000 ft. for orders.
Cranfill & Reynolds' No. 1 Flanagan, 990 ft. from S and W of Sec. 200, Blk. 1, B.B.B.&C. Sur. ..... Location.
Gillman-McMurray & French's No. 1 Cleveland, 781 ft. N and 1,336 ft. W of SE cor. Sec. 116, Blk. 2, H.&T.C. Sur. ..... Underreaming 5-in. 3,530 ft.
Magnolia Pet. Co.'s No. 1 Lee, Sec. 357, 2,310 ft. from N and 4,286 ft. from W ..... Drlg. 675 ft.
Mesa Oil Co.'s No. 1 Griffin, 849 ft. N and 465 ft. E of NE cor. Sec. 20, School Land ..... Shut down 2,985 ft.
Roeser & Pendleton's No. 2 Haught, Sec. 191, Blk. 1, 590 ft. from N and 1,320 ft. from W ..... Drlg. 510 ft.
Texas-Phillips' No. 1 Hall, 330 ft. N and W of SE cor. Sec. 6, Blk. 20 ..... Hole full water 3,185 ft.; total depth 3,560 ft.
White Eagle Oil & Ref. Co.'s No. 1 Hughes, 4,942 ft. S and 560 ft. W of NE cor. Cosby Sur. 220 ..... Dry 2,390 ft.

GARZA COUNTY

Emerald Oil Co.'s No. 1 J. C. Bargsley, 2,310 ft. from E and 330 ft. N of SW cor. Sec. 135, Blk. 5, H.&G.N. — Location.

Emerald Oil Co.'s No. 1 J. S. Reed, 990 ft. W and 330 ft. N of SE cor. Sec. 135, Blk. 5,, H.&G.N.R.R. Sur. — T. D. 2,546 ft.; 300 ft. oil in hole; T. P. 2,527 ft.; swabbed 66 bbls. in 6 hours after shot; shot 180 qts. 2,485-95 ft. and 2,503-40 ft.; swabbed 35 bbls. oil and 1 bbl. salt water; cleaning out.

Gulf Prod. Co.'s No. 1 Street, C Sec. 7, Blk. 8, H.&G.N. R.R. Sur. — Drlg. 583 ft.

GLASSCOCK COUNTY

A. & F. Oil Co.'s No. 1 Turner, 2,310 ft. from N and 330 ft. from E Sec. 19, Blk. 33, Twp. 2s, T.&P. Sur. — Location.

Chas. Daniel et al's No. 1 Meek, 2,310 ft. W and 1,600 ft. N of SE cor. Sec. 7, Blk. 34, Twp. 3s, T.&P. Sur. — Shut down 500 ft.

Gibson-Johnson's No. 1 Dean, 1,320 ft. S and E of NW cor. Sec. 2, Blk. 33, Twp. 2s, T.P.R.R. Sur. — Top salt 1,075 ft.; drlg. 2,120 ft.

Houston Oil Co.'s No. 1 McDowell, 330 ft. from N and 2,310 ft. from E Sec. 30, Blk. 33, Twp. 2s — Drlg. 290 ft.

Kirby Pet. Co.'s No. 1 Phillips, Sec. 23, Blk. 33, Twp. 2s, 330 ft. from N and 2,310 ft. from W. — Location.

Penn Oil Co.'s No. 1 Schaffer, 1,320 ft. from S, 2,640 ft. from E Sec. 4, Blk. 32, Twp. 3s, T.P.R.R. Sur. — Location.

Texas State Oil Co.'s No. 1 Coffey, 330 ft. from S and 990 ft. from E Sec. 19, Blk. 34, Twp. 2s — Rig.

World Oil Co.'s No. 3 McDowell, Sec. 21, Blk. 34, Twp. 2s, 990 ft. from N, 2,310 ft. from W — Location.

HOWARD COUNTY

Amerada Pet. Corp.'s No. 10 Roberts, Sec. 137, Blk. 29, 990 ft. from N and 330 ft. from E — Drlg. 2,890 ft.

California Co.'s No. 7 Roberts, 874 ft. S, 990 ft. E Sec. 137, Blk. 29, W.&N.W.R.R. Sur. — Location.

Cosden Oil Co.'s No. 5 Roberts-A, Sec. 129, Blk. 29, 200 ft. from S and 2,440 ft. from E — Moving in rotary; total depth 262 ft.

F. H. E. Oil Co.'s No. 11-B Dora Roberts, 1,700 ft. S and 2,310 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W. Sur. — Fishing 2,515 ft.

F. H. E. Oil Co.'s No. 5-D Dora Roberts, 2,310 ft. S and 1,650 ft. E of NW cor. Sec. 136, Blk. 29 — Set 6-in. casing 2,930 ft.; shut down.

Fuhrman Pet. Co.'s No. 1 Read, 2,310 ft. N and 330 ft. E of SW cor. Sec. 41, Blk. 32, Twp. 1n, T.&P.R.R. Sur. — Location.

Gibson & Johnson's No. 1 Read, 660 ft. N and W of SE cor. Sec. 47, Blk. 30, Twp. 1n, T.&P.R.R. Sur. — Total depth 2,715 ft.; top pay 2,703-08 ft.; 1,700 ft. oil in hole.

Houston Oil Co.'s No. 1 L. S. McDowell, 2,310 ft. W and 330 ft. S of NE cor. Sec. 30, Blk. 33, Twp. 2s, T.&P. R.R. Sur. — Location.

Humble O. & R. Co.'s No. 3 Clay, Sec. 138, Blk. 29, 1,650 ft. from N and 330 ft. from W — Shut down 2,939 ft.

Magnolia Pet. Co.'s No. 2 Hyman, 1,320 ft. W and 1,220 ft. N of SE cor. Sec. 88, Blk. 29, W.&N.W. Sur. — Drlg. 1,245 ft.

Magnolia Pet. Co.'s No. 13 Dora Roberts, 2,440 ft. N and 1,650 ft. E of SW cor. Sec. 136, Blk. 29, W.&N.W. Sur. — Shut down 2,927 ft.

Marland Prod. Co.'s No. 3 Clay-F, 250 ft. S and 660 ft. W of NE cor. Sec. 138, Blk. 129, W.&N.W.R.R. Sur. — Shut down 2,675 ft. with show oil 2,595-2,675 ft.

Marland Oil Co.'s No. 1 Clay-H, 330 ft. S and 990 ft. W of NE cor. Sec. 155, Blk. 29 — Location.

Marland Oil Co.'s No. 2 Clay-H, 990 ft. S and W of NE cor. Sec. 155, Blk. 29 — Location.

McGinley & Seigler's No. 1 Barnett, 330 ft. S and E of NW cor. Sec. 928, Blk. 29, W.&N.W.R.R. Sur. — Shut down 720 ft.

McGinley et al's No. 2 Hyman, Sec. 92, Blk. 29, W.& N.W.R.R. Sur. — Rigging up.

Merriwether's No. 1 Smith, 150 ft. from S, 2,490 ft. from W Sec. 45, Blk. 33 — Rig.

Merrick & Lamb's No. 8 Clay, 1,120 ft. from S, 1,100 ft. from E line of Sec. 126, Blk. 29, W.&N.W.R.R. Sur. — Location.

Moody Corp.'s No. 14 Roberts-E, Sec. 136, Blk. 29, 1,650 ft. from N, 990 ft. from E — Shut down 285 ft.

Schermerhorn Oil Co.'s No. 6 D. Roberts-A, 1,650 ft. S. and 330 ft. W of NE cor. Sec. 137, Blk. 29, W.& N.W.R.R. Sur. — Shut down 3,047 ft.; top pay 2,911 ft.; to test.

Superior Oil Co.'s No. 14 Dora Roberts-B, 2,310 ft. E and 280 ft. S of NW cor. Sec. 137, Blk. 29, W.&N.W. Sur. — Shut down 200 ft.

Superior Oil Co.'s No. 15 Dora Roberts-B, 2,310 ft. S and 380 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W. R.R. Sur. — Fishing 2,565 ft.

Ward Oil Co.'s No. 7 Roberts, 2,310 ft. N and 380 ft. E of SW cor. Sec. 137, Blk. 29, W.&N.W.R.R. Sur. — Drlg. 2,370 ft.; show oil 2,341-51 ft.

HUDSPETH COUNTY

Western States Oil Co.'s No. 1 Lockhart & Roseborough, C SE Sec. 5, School Blk. 21 — Drlg. 1,080 ft., lime.

California Co.'s No. 1 University, 3,821 ft. N and 2,554 ft. E of SW cor. Sec. 19, Blk. E — Total depth 1,640 ft.; straight-reaming.

Western States Oil Co.'s No. 1 Moore, C SE Sec. 16, Blk. 71, Twp. 6, T.&P. Sur. — Shut down 2,685 ft.; fishing.

Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW Sec. 12, Blk. 18 — Shut down 3,140 ft.; fishing.

IRION COUNTY

Crawford Oil Co.'s No. 1 Williams, 450 ft. from N, 150 ft. from W Subd. 8 — Spudded and shut down.

Fuhrman Pet. Co.'s No. 1 J. O. Suggs, Lease 1, C SE Sec. 3,024, Blk. 24, H.&T.C. Sur. — Shut down 1,994 ft.

Kimbrough & Flinchbaugh's No. 1 Tankersley, 160 ft. S and 200 ft. W of NE cor. Sec. 712, Ford Willig Sur. — Show oil 1,318-29 ft.; total depth 1,329 ft.; swabbing 15 bbls.; underreaming; 500 ft. fluid in hole, 40 per cent water; bailing 8 bbls. per day.

Kimbrough & Tuel's No. 1 J. M. Nutt, 1,920 ft. S, 200 ft. E of NW cor. Sec. 5, Gonzales Co. School Land — Set 6-in. casing 1,360 ft.; cleaning out; T. P. 1,318 ft.; 500 ft. fluid in hole; 40 per cent water; shut down 1,420 ft.

Pecos Valley Oil Co.'s No. 2 Stocks, Sec. 19, Blk. 3, 1,020 ft. from S and W, H.&T.C. Sur. — Drlg. 1,030 ft.

Webb's No. 2 Nutt, 200 ft. from N and 711 ft. from E Subd. 5 — Location.

Kingwood Oil Co. et al's No. 1 J. D. Suggs, SE NW SE Sec. 19, Blk. 7, H.&T.C. Sur. — Top pay 3,368 ft.; swabbed 35 bbls. oil and 40 bbls. water; 35.8 gravity oil; show oil 5,480-83 ft.; show oil 5,660-70 ft.; show oil 6,772-75 ft.; drlg. 6,942 ft.

JEFF DAVIS COUNTY

J. K. Hughes Dev. Co.'s No. 2 Means, 1,622 ft. N line, 600 ft. W line Sec. 345, H.&T.C. Sur. — Show gas 3,271 ft.; fresh water 3,000-05 ft.; underreaming 5 3/16-in. casing; drlg. 4,005 ft.; 600 ft. fresh water 4,000-26 ft.

JONES COUNTY

J. E. Brewer's No. 1 Goodman, 150 ft. N and E of SW cor. Sec. 15, Blk. 19, T.&P.R.R. Sur. — Location.

Cosden & Herbert Oil Co.'s No. 1 Bickley, 320 ft. N and 310 ft. E of SW cor. S half NW Sec. 50, Blk. 18, T.&P. Sur. — Rigged up and shut down.

Cosden-Herbert et al's No. 3 Bickley, 330 ft. N and W of SE cor. of S half NW Sec. 50, Blk. 18 — Rig.

W. G. Clark et al's No. 1 Collins, 330 ft. S and E of NW cor. Sec. 29, Blk. 18, T.&P.R.R. Sur. — Rig.

Humble Oil & Ref. Co.'s No. 2 Bickley, 330 ft. S and W of NE cor. of SW Sec. 50, Blk. 18, T.&P.R.R. Sur. — Rigging up.

McGinley Corp.'s No. 1 Whittemore, 660 ft. N and W of SE cor. SE NE Sec. 39, B.B.B.&C. — Drlg. 2,260 ft.

McNeeley et al's No. 1 Roscoe Bland, 1,175 ft. N and 240 ft. W of SE cor. Subdivision 20, A-164, DeWitt Co. School Land — Spudded and shut down.

Phillips Pet. Corp.'s No. 2 M. C. Lan, 990 ft. from N and W line Sec. 15, Blk. 19, T.P.R.R. Sur. — Moving in material.

Sedgwick Oil & Gas Co.'s No. 1 Brown, 660 ft. N and 1,320 ft. E of SW cor. Sec. 9, Blk. 1, T.&N.O. Sur. — Location.

The Texas Company's No. 2 Camp, 2,829 ft. N and 323 ft. W of SE cor. Camp. 189.5-acre lease, Sec. 13, T.&P. Sur., Blk. 19 — Drlg. 800 ft.

The Texas Company's No. 3 Camp, 1,189 ft. S and 326 ft. W of NE cor. of Sec. 13, Blk. 19, T.&P. — Set 4-in. casing at 2,475 ft.

U. L. Tomberlin's No. 1 Horn, 1,980 ft. N and 600 ft. E of SW cor. of 502 ac. of Penney Sur. A-283 — Shut down 2,507 ft.

E. M. Treat Oil & Gas Co.'s No. 1 Hodge, 760 ft. S and 2,714 ft. W of NE cor. of S half A. Bell Sur. — Drlg. 1,720 ft.

W. D. Wells et al's No. 1 Britton, 150 ft. N and 890 ft. E SW cor. 640-ac. tract, H.&W. Sur. 354-355 — Drlg. 2,830 ft.

White Eagle Oil & Ref. Co.'s No. 1 W. B. Teague, 933 ft. N and W of SE cor. Sec. 30, Austin & Williams Sur. No. 339 — Drlg. 1,685 ft.

KIMBLE COUNTY

C. L. Bryant and others' No. 1 Lambert, 700 ft. from N and W line of F. Lotta Sur. — Location.

Lindsay Bros.' No. 1 Anderson, Sec. 167, 1,320 ft. from N and E — Drlg. 300 ft.

McLean & Jamison's No. 1 Cannon, 1,940 ft. N and 300 ft. W of SE cor. Robert Cochran Sur. — Shut down 571 ft.

LOVING COUNTY

Lockhart & Co.'s No. 2 Bowen-Wells, 990 ft. NW and 330 ft. SE Sec. 92, Blk. 1, W.&N.W.R.R. Sur. — Drlg. 460 ft.

Lockhart & Co.'s No. 1 Hazell, 2,792 ft. SW of NE line and 660 ft. NW of SE line Sec. 84, Blk. 33, H.&T.C. R.R. Sur. — Top salt 700 ft.; drlg. 1,725 ft.

Lockhart & Co.'s No. 2 Hayzell, 330 ft. from NE and SE line of Sec. 84, Blk. 33, H.&T.C.R.R. Sur. — Top salt 700 ft.; drlg. 2,720 ft.

Lockhart & Co.'s No. 1 Johnson, 660 ft. S and 1,980 ft. W of NE cor. Sec. 20, Blk. 56, Twp. 1, T.&P.R.R. Sur. — Top salt 1,110 ft.; total depth 3,122 ft.; cem. 6-in. casing 3,117 ft.

Lockhart & Co.'s No. 1 Wheat-H, 990 ft. from NE and SE lines Sec. 85, Blk. 33, H.&T.C.R.R. Sur. — Top salt 720 ft.; set 8¼-in. casing 2,295 ft.; show oil 4,147 ft.; swabs 10 bbls. per day; total depth 4,197 ft.; shot 110 quarts 4,150-80 ft.; flowing 2 bbls. salt water hourly.

LYNN COUNTY

George McCamey's No. 1 Edwards, 165 ft. N and E Sec. 5, Blk. 2, L.S.&W. Sur. — Top salt 2,140 ft.; oil show 1,580-90 ft.; total depth 2,355 ft.

MENARD COUNTY

Cromwell & Duffey's No. 1 Winslow, C SE Sec. 32, T.&N.O. Sur. — Shut down 1,505 ft.

MIDLAND COUNTY

Phillips Pet. Corp.'s No. 1 Stokes, 440 ft. S and W of NE cor. S. Beall Sur. No. 101, Blk. 37, Twp. 2s, T.P.R.R. Sur. — Top salt 1,610 ft.; top lime 3,720 ft.; fishing 3,915 ft.; 1,500 ft. fluid in hole; drlg. 3,927 ft.; rainbow oil 3,915 ft.

Shoupe et al's No. 1 Roy Parks, 1,320 ft. N and W Sec. 34, Blk. 41 — Top lime 4,744 ft.; shut down 4,980 ft.; to deepen.

MITCHELL COUNTY

The California Co.'s No. 2, Clark Lease No. 2, 2,190 ft. N and E of SW cor. Sec. 14, Blk. 28, Twp. 1n, T.P.R.R. Sur. — Top pay 2,962 ft.; drlg. 2,986 ft.; show oil 2,405 ft.; 2,800 ft. oil in hole.

California Co.'s No. 7 Foster, Lease No. 1, Sec. 6, Blk. 29, Twp. 1s, T.P.R.R. — Drlg. 546 ft.

California Co.'s No. 1 Handley, 2,310 ft. from S, 1,650 ft. from E Sec. 1, Blk. 28, Twp. 1n, T.&P. Sur. — Shut down 47 ft.

Seiger's No. 1 Scott, C of NE of SW Sec. 36, Blk. 17, S.P.R.R. Sur. — Shut down 730 ft.

Republic Prod. Co.'s No. 1 Scott, 330 ft. N and E of SW Sec. 20, Blk. 17, S.P.R.R. Co. — Drlg. 1,200 ft.

Simms Pet. Co.'s No. 1 Elwood, C SE of Sec. 29, Blk. 18, S.P.R.R. Sur. — Underreaming 10-in. casing 1,073 ft.; drlg. 4,235 ft.

Spence et al's No. 1 Brown, 2,040 ft. E and 1,320 ft. S NW cor. Sec. 37, Blk. 25, T.&P. — Shut down 810 ft.

Teas & Wheeler's No. 1 Radford, 1,320 ft. N and W of Sec. 1, Blk. 27, T.&P. Sur. — Cleaning out 4,048 ft.

Westyde Investment Co.'s No. 1 Elwood, C SW Sec. 38, Blk. 16, S.P.R.R. Sur. — Drlg. 820 ft.

NOLAN COUNTY

L. G. Bradstreet et al's No. 1 Kuteman, C NW Sec. 95, Blk. X, T.&P. Sur. — Drlg. 1,800 ft.

Phillips Pet. Co.'s No. 1 Plunkett, 330 ft. N and W of SE cor. NW Sec. 66, Blk. 23, T.&P. Sur. — Shut down 1,500 ft.

PECOS COUNTY

H. Adams' No. 1 University, 1,650 ft. from N, 150 ft. from E Sec. 12, Blk. 17 — Drlg. 520 ft.

Alexander & Lyle's No. 1 Myrtle Sellman, C SW SE Sec. 20, Blk. Z, T.S.Ry Sur. — Top salt 814 ft.; top lime 1,602 ft.; 3,400,000 ft. gas from 1,611-26 ft.; spraying very little oil; sulphur water 1,652 ft.; shut down 1,655 ft.

Atlantic O. P. Co.'s No. 1 Trees, 330 ft. from N and 990 ft. from W line Sec. 108, Blk. 8, H.&G.N.R.R. Sur. — Drlg. 1,620 ft.; show oil 1,570-76 ft.

Cosby's No. 1 Smith, Sec. 24, Blk. 194, 1,650 ft. from N, 330 ft. from E, G.C.&S.F.R.R. Sur. — Drlg. 215 ft.

Buell & Hagan's No. 1 University-B, 330 ft. N and 2,310 ft. W of SE cor. Sec. 36, Blk. 18, University Land — 2,500,000 ft. gas; cleaning out; shut down 1,332 ft.; hole fills 350 ft. over night.

Cowboy Evans' No. 1 Pecos Valley, 2,310 ft. from NW line, 990 ft. from SW line of Sec. 36, Blk. 3, H.&T.C. R.R. Sur. — Shut down 280 ft.

Cromwell & Kimberlin's No. 1 Jackson, 2,490 ft. from NW line, 1,170 ft. from NE line Sec. 28, Blk. 3, H.&T.C.R.R. — Location.

Crowley's No. 1 Heiner, 2,400 ft. each way from N and E lines Sec. 589, G.C.&S.F.R.R. Sur. — Shut down 1,300 ft.

Clayton Williams' No. 1 Sanford, 160 ft. from NW line, 1,150 ft. from SW line Sec. 55, Blk. 10, H.&G.N. — Shut down 500 ft.

Doran & McGee's No. 1 Pecos Valley, Sec. 34, Blk. 3, H.&T.C. — Top salt 1,080 ft.; drlg. 1,425 ft.

Gibson-Johnson's No. 1, 330 ft. from N, 990 ft. from E Sec. 3, Blk. 179 — Shut down 300 ft.

Independent Oil & Gas Co.'s No. 1 Iowa Realty Trust Co., 2,310 ft. each way NE SE line Sec. 23, Blk. 10, H.&G.N.R.R. — Drlg. 380 ft.

Sam Kitts and others' No. 1 Sherbino, 330 ft. from N and 990 ft. from W line Sec. 52, Blk. C-4, G.C.&S.F. R.R. ... Fishing 250 ft.

Seminole Oil Co.'s No. 1 Pecos Valley, Sec. 22, Blk. 10, 360 ft. from SW, 2,280 ft. from SE, H.&G.N. Sur. ... Location.

Marland Oil Co.'s No. 1 University, Sec. 10, Blk. 17, 1,620 ft. from N, 1,020 ft. from E ... Rig.

Matador Oil Co.'s No. 3 Smith, 2,310 ft. from N and 990 ft. from E lines, Sec. 24, Blk. 194, G.C.&S.F.R.R. Sur. ... Moving in machine.

Mauch & Kroger's No. 1 Holmes, Sec. 5, Blk. 178, T.C. Sur. ... Shut down 1,442 ft.

McMan Oil & Gas Co.'s No. 6 Smith, C Sec. 25, Blk. 194, 2,127 ft. from N and 1,740 ft. from W ... Drlg. 1,365 ft.

McMan Oil & Gas Co.'s No. 7 Smith, 660 ft. from N, 990 ft. from E Sec. 25, Blk. 194 ... Drlg. 470 ft.

R. E. Moore's No. 1 Arnold, 1,320 ft. from S and 660 ft. from E lines of Sec. 18, Blk. 1, H.&T.C.R.R. ... Shut down 500 ft.

Perrin et al's No. 1 Eaton, 150 ft. each way from NE and NW lines Sec. 27, Blk. 39, H.&T.C. Sur. ... 18,000,000 ft. gas 1,490-1,502 ft.; spraying salt water from behind 8¼-in. casing set at 1,180 ft.; shut down 1,502 ft.; 5 3/16-in. casing set on bottom with last joint perforated; 18,000,000 ft. gas shut in.

Phillip Pet. Corp.'s No. 1 Bowser, 250 ft. from N and E Sec. 77, Blk. OW, G.C.&S.F.R.R. ... Drlg. 265 ft.

Plymouth Oil Co.'s No. 2 Perry, Sec. 29, Blk. 178, 330 ft. from N and E cor. ... Set 6-in. casing; show oil and water; shut down 1,776 ft.; show oil 1,772 ft.; tested 4 bbls. oil and 4 bbls. water.

Phillips Pet. Co.'s No. 1 Pryor, 440 ft. S and E of NW cor. Sec. 78, Blk. OW, T.M.R.R. Sur. ... Top pay 1,345 ft.; 400 ft. oil in hole; shut down 1,532 ft.

Phillips Pet. Co.'s No. 2 Ramsey, 990 ft. S and 1,980 ft. W of NE cor. Sec. 17, Blk. 194, G.C.&S.F. Sur. ... Drlg. 1,580 ft.

Rio Pecos' No. 2 Yates, 5,130 ft. from E, 510 ft. from S Sec. 543, Blk. 1 ... Drlg. 425 ft.

T. G. Shaw's No. 1 Yates, Sec. 58, Blk. 1, I.&G.N.R.R. Sur. ... Location.

B. J. Spikes' No. 1 George Brown ... Show oil 1,180-90 ft.; shut down 1,826 ft.

Shell Oil Co.'s No. 1 University ... Show gas 990 ft.; est. 150,000 ft. at 1,024 ft.; drlg. 1,537 ft.

Schumaker et al's No. 1 Williams et al, 330 ft. N of middle of S line Sec. 1, Blk. 117, G.C.&S.F. ... Shut down 1,200 ft.

Southern Crude O. P. Co.'s No. 1 Jackson T-139, Sec. 28, Blk. 3, 1,487 ft. from NE, 2,518 ft. from SE cor. ... Location.

Talbot and others' No. 1 Unsicker, 150 ft. each way from NE and SE cor. line of Sec. 25, Blk. 10, H.&G.N. Sur. ... Material on ground.

Taylor Link Oil Co.'s No. 1 University, 330 ft. from S and E Sec. 30, Blk. 16, University ... Slight show oil at 935 ft.; 250,000 ft. gas from 1,195 to 1,204 ft.; bailed 22 bbls. dead oil; total depth 1,625 ft.; top pay 1,613 ft.; est. flowing 75 bbls. daily by heads.

Tidal Oil Co.'s No. 1 University, 1,320 ft. from S and W lines of Sec. 16, Blk. 20, University Land ... Drlg. 990 ft.; top salt 786 ft.

Transcontinental Oil Co.'s No. 1 University, NE NW SW Sec. 18, Blk. 18 ... Top lime 1,155 ft.; total depth 4,407 ft.

World Oil Co.'s No. 1 Kloh, 2,310 ft. from N and E line Sec. 47, Blk. 48, Twp. 8, T.P.R.R. Sur. ... Total depth 3,105 ft.

PRESIDIO COUNTY

L. C. Brite's No. 4 Brite, 271 ft. from N, 1,188 ft. from E Sec. 245, Blk. 4 ... Location.

Eastland Oil Co.'s No. 1 Tootle, C Sec. 17, Blk. 1, D.P. R.R. Sur. ... Spudded; shut down.

Phillips Pet. Co., Empire G. & F. Co., Delmar Co. and C. E. Miller's No. 1 Tootle Est., C NE Sec. 75, Blk. 3, D.&P.R.R. Sur. ... Shut down 2,707 ft.; slight oil show and gas at 2,707 ft.

REAGAN COUNTY

Big Lake Oil Co.'s No. 1-C University, 2,598 ft. S and 250 ft. W of NE cor. Sec. 1, Blk. 2, University Land. ... Shut down 2,636 ft.

Kemrow Co.'s No. 1 Sawyer Cattle Co., 1,320 ft. from N and 1,980 ft. from E line Sec. 8, J. G. Robinson Sur. ... Location.

REEVES COUNTY

Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W of NE cor. Sec. 26, Blk. C-18, Public School Land, elev. 2,847 ft. ... Total depth 2,900 ft.; shut down.

Earl Henby's No. 1 Brooks, 1,980 ft. N and 660 ft. W Sec. 16, Blk. 59 ... Shut down 110 ft.

Southern Crude O. P. Co.'s No. 1 Kloh-Rumsey, 2,310 ft. N and W SE cor. Sec. 23, Blk. 51 ... Hole full water 1,275 ft.; total depth 1,465 ft.; cem. 12½-in. casing at 1,463 ft.

David R. Thompson's No. 1 A. A. Eddins ... Fishing casing 5,658 ft.; underreaming 8¼-in. casing.

Robert Penn et al's No. 1 Bowles, 2,310 ft. SW of NE cor. Sec. 36, Blk. 50, Twp. 8, T.&P.R.R. Sur. ... Top salt 1,725 ft.; hole full fluid 5,176 ft.; underreamed 6-in. cas-5,225 ft.; drlg. 5,425 ft.; showing little oil, 200,000 ft. gas.

Lee O. White et al's No. 1 Kloh-Rumsey, 660 ft. S and E of NW cor. Sec. 5, Blk. 51, Twp. 10, T.&P. Sur. ... Cem. 10-in. casing 1,485 ft.; total depth 1,530 ft.

RUNNELS COUNTY

Boyce et al's No. 1 E. O. Lange, 2,300 ft. S and 6,900 ft. W of NE cor. Austin & Williams Sur. No. 262 ... Shut down 1,350 ft.

Herbert Oil Co.'s No. 1 Currie, 1,866 ft. SE of NW line, 335 ft. SW of NE line Gray Carroll Sur. ... Drlg. 1,420 ft.

Independent Oil & Gas Co.'s No. 1 Will Rollwitz, 330 ft. S and W of NE cor. S half M. Salinas Sur. No. 20½ ... Drlg. 3,840 ft.

Marland Prod. Co.'s No. 1 August Herring, 330 ft. S and 1,650 ft. W of NE cor. Sec. 39, E.T.R.R. Co. Sur. ... Shut down 4,183 ft.

McLean et al's No. 1 G. W. Clayton, 150 ft. N line, 270 ft. from W line Sec. 135, E.T.R.R. ... Shut down 1,185 ft.

Nourse & Tilton's No. 1 Cramer, 200 ft. S. 600 ft. E of NW cor. G.C.&S.F. Sur. No. 2 ... Running 5-in. casing 3,815 ft.

Vacuum Oil Co.'s No. 4 McMillan, 555 ft. S and 717 ft. W of NE cor. Lot 22, Domingo Diaz Sur., No. 532 ... Location.

SCHLEICHER COUNTY

Fort McKavet's No. 1 Tisdale, Sec. 1,499, River Section, 3,630 ft. from S, 150 ft. from W ... Set 6-in. casing 3,023 ft.

Interstate's No. 1 Whitten, 1,320 ft. from N and W Sec. 35, Blk. LL, T.C.R.R. Sur. ... Shut down 3,540 ft.

Underwood's No. 1 Tisdale, 2,095 ft. N and 1,185 ft. from E Sec. 74, Blk. LL ... Spudded and shut down.

SCURRY COUNTY

Cottingham & Briscoe's No. 1 Truss, C SE Sec. 147, Blk. 97 ... Location.

I. B. Mimms et al's No. 1 J. J. Koonsman, Sec. 216, Blk. 2, H.&T.C. Sur. ... Spudded and shut down 300 ft.

G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ... Fishing 2,900 ft.

Texas-Canadian's No. 1 Moore, 1,320 ft. from S and W Sec. 379, Blk. 97 ... Location.

STERLING COUNTY

F. & G. Oil Co.'s No. 1 W. L. Foster, C SE Sec. 20, Blk. 12, S.P.R.R. ... Show oil 1,296-98 ft. and 1,356-58 ft.; fishing 2,782 ft.; shut down 2,503 ft.

SUTTON COUNTY

Phillips Pet. Co.'s No. 1 A. G. Holman, 2,310 ft. S and 330 ft. W NE cor. Sec. 25, G.C.S.D.&N.G.R.R. Sur. ... Fishing 6,635 ft.; making 1,500,000 ft. gas 6,635 ft.

L. G. Priest's No. 1 Allison, 1,320 ft. N and E of SW cor. Sec. 52, Blk. A, T.&P. Sur. ... Set 15-in. casing 530 ft.; fishing 2,449 ft.

Southern C. O. P. Co.'s No. 1 Allison, 2,310 ft. S and 320 ft. W of NE Sec. 41, Blk. K, G.H.&S.A. ... Est. 1,000,000 ft. gas from 4,640-45 ft.; shut down 4,950 ft.; 1,000,000 ft. gas from 4,640-45 ft.

TAYLOR COUNTY

V. B. Jameson's No. 1 Webb, 1,170 ft. S and W of NE cor. Sec. 46, Lunatic Asylum Land ... Drlg. 3,550 ft.

Magnolia Pet. Co.'s No. 1 Hammer ... Location.

Root Drlg. Co.'s No. 1 Martin, 990 ft. E and 1,650 ft. N of SW cor. Sec. 30, Blk. 19, T.&P.R.R. Sur. ... Fishing lugs 2,450 ft.

Wentz Oil Corp.'s No. 1 Armour, 275 ft. N and 330 ft. W of SE cor. W half Sec. 16, Blk. 6, S.P.R.R. Sur. ... Shut down 2,250 ft.

TERRELL COUNTY

Big-Bend Oil Co.'s No. 1 Barrett, C NW Sec. 155, Blk. D, M.-K.-T.R.R. Sur. ... Spudded and shut down.

Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Blk. D-7, E.L.R.R. Sur. ... Shut down 2,450 ft.

Mrs. J. B. McPhee's No. 1 Sam Belt, C Sec. 78, Blk. D-7, E.L.&R.R. Sur. ... Shut down 520 ft.

Milham Exploration Co.'s No. 1 Bassett, Sec. 76, Blk. Y, W. E. Robertson Sur. ... Cem. 6⅝-in. casing 3,986 ft.; fishing 5,075 ft.

Woodley & Jones' No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.&N.G.R.R. Sur. ... Shut down 700 ft.

TERRY COUNTY

Kingsland O. P. Co.'s No. 1 Brownfield, C NW SW SW Sec. 7, Blk. 1-A, E.L.R.R. Sur. ... Fishing bailer 5,080 ft.

TOM GREEN COUNTY

Cannon and others' No. 1 Rust, 990 ft. S, 990 ft. W of NE cor. of Sec. 745 ... Location.

Fitzgerald & Taliaferro's No. 1 Bennett, C SW Sec. 1,628, E. H. Ringer ... Shut down 1,920 ft.

Williams et al's No. 1 Willeke, 2,500 ft. N and 75 ft. E of SW cor. Sec. 3, Deaf & Dumb Asylum Land ... Total depth 750 ft.; hole full sulphur water 750 ft.

UPTON COUNTY

Dixie Oil Co.'s No. 30 Burleson, 990 ft. from N and 2,640 ft. from E Sec. 2, John Nidever ... Location.

YOAKUM COUNTY

Weekly Oil Corp.'s No. 1 Knight, C NW Sec. 791, Blk. D, John Gibson Sur. ... Drlg. 1,950 ft.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ... Shut down 4,850 ft.

O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ... Gas sand 2,491-2,520 ft.; tested 125,750 ft. gas; reset 8-in. 2,511 ft.; shut down 4,210 ft.

Producers Oil Co. et al's No. 1 Everett Bros., 2,310 ft. S and 330 ft. E of NW cor. Sec. 40, Blk. DB, C.C.S.D.&R.G.N.G. Sur. ... Shut down 2,450 ft.

Dyar Bros. et al's No. 1 Wilson, 6,830 ft. N NE cor. Sec. 1, T.&P. Sur., thence 1,680 ft. E Sec. 115, Blk. E, G.C.&S.F. Sur. ... Shut down 2,920 ft.

Valvert Oil Corp.'s No. 1 Bassett, C NE Sur. 47, Blk. Y ... Set 15½-in. casing 767 ft.; set 10-in. casing 1,510 ft.; shut down 3,760 ft.

WARD COUNTY

Atlantic & Delmar Co.'s No. 2 Hayzlett, 150 ft. each way from W cor. E Sec. 17, Blk. 5, H.&T.C. ... Total depth 2,500 ft.; shot 90 qts. 2,470-2,500 ft.; init. prod. 125 bbls.

Gulf Prod. Co.'s No. 2 Hutchins, 330 ft. N and E Sec. 7, Blk. O ... Top salt 1,240 ft.; drlg. 2,482 ft.; 500,000 ft. gas.

Barstow Oil & Gas Co.'s No. 1 Gillespie, Sec. 50, Blk. 33. ... Spudded and shut down.

Gulf Prod. Co.'s No. 5 O'Brien, 330 ft. each way NW of SW Sec. 18, Blk. F, G.M.M.B.&A. Sur. ... Top salt 1,273 ft.; drlg. 2,627 ft.; made large head; cleaning out.

Gulf Prod. Co.'s No. 1 Wristen, 216 ft. NW, 1,107 ft. SE Sec. 18, Blk. 5 ... Drlg. 150 ft.

Kemper-Kimberlin's No. 1 Thompson, 1,470 ft. NE, 150 ft. NW Sec. 15, Blk. 5 ... Location.

E. B. Lovelace et al's No. 1 Redman, 1,980 ft. NE of SW line and 1,980 ft. SE of NW line, Sec. 162, Blk. 34, H.&T.C.R.R. ... Crooked hole 150 ft.

Penn & Atlantic's No. 1 Pecos Mercantile Co., Sec. 16, Blk. 34 ... Location.

Shipley's No. 2 Hayzlett, 220 ft. SE and 1,570 ft. SW Sec. 17, Blk. 5, H.&T.C.R.R. Sur. ... Location.

Shipley et al's No. 1 Monroe, 330 ft. SE SW Sec. 3, Blk. 1 ... Location.

WINKLER COUNTY

American Maracaibo Co.'s No. 2 Hendricks-B, 1,980 ft. N and 1,650 ft. E of SW cor. Sec. 28, Blk. B-5 ... Cem. 12½-in. casing 170 ft.; top lime 2,599 ft.; top pay 2,731 ft.; 2,000 ft. oil; increase 2,875 ft.; show water 2,928-31 ft.; running 6-in. casing 2,945 ft.

V. T. Bolin's No. 2 Brown et al, 2,000 ft. S and W of NE Sec. 4, Blk. B-5, Public School Land ... Top salt 1,300 ft.; drlg. 1,450 ft.

Gulf Prod. Co.'s No. 1 Daugherty, 330 ft. S and W of NW and W of Sec. 22, Blk. 26 ... Top lime 2,429 ft.; total depth 2,750 ft.; top pay 2,745-50 ft.; est. 5,000 bbls. oil per day, 36 per cent water, 10,000,000 ft. gas; flowed 700 bbls. in 24 hrs.; to drill deeper.

Gulf Prod. Co.'s No. 1 Clapp, 330 ft. S and W Sec. 27, Blk. 26 ... Drlg. 1,100 ft.

Gulf Prod. Co.'s No. 3 Hendricks, 330 ft. from N and 2,310 ft. W Sec. 44, Blk. 26, Public School Land ... Building rig.

Humble O. & R. Co.'s No. 12 Hendricks-C, 1,980 ft. N and 1,325 ft. E of SW cor. Sec. 10, Blk. B-12 ... Top salt 1,580 ft.; top lime 2,478 ft.; cem. 8¼-in. casing 2,480 ft.

Kermit Dev. Co.'s No. 1 Carter, 640 ft. S, 2,227 ft. W Sec. 27, Blk. B-3 ... Shut down 400 ft. to cure title.

Magnolia Pet. Co.'s No. 2 Scarborough, 1,620 ft. N and 990 ft. W SE cor. Sec. 1, Blk. C-22 ... Top salt 1,125 ft.; drlg. 2,205 ft.

Shell Pet. Co.'s No. 6 Scarborough, 330 ft. N and W of SE cor. NW SE Sec. 1, Blk. C-22 ... Total depth 2,928 ft.; top lime 2,580 ft.; gas at 2,928 ft.

Skelly Oil Co.'s No. 3 Daugherty, 330 ft. W, 1,650 ft. S Sec. 22, Blk. 26, Public School Land ... Location.

Skelly Oil Co.'s No. 4 Daugherty, 990 ft. S, 330 ft. W Sec. 22, Blk. 26 ... Location.

Skelly Oil Co.'s No. 5 Daugherty, 1,326 ft. W, 2,310 ft. S Sec. 22, Blk. 26 ... Location.

Skelly Oil Co.'s No. 2 Hendricks-C, 1,320 ft. N and 2,310 ft. W of SE cor. Sec. 10, Blk. B-12 ... Top lime 2,636 ft.; show oil 3,034 ft.; hole full sulphur water 3,030-39 ft.; total depth 3,055 ft.; flowing 1,000 bbls. fluid, 99 per cent water; drlg. plug.

Skelly Oil Co.'s No. 2 Leck, 2,310 ft. N and 330 ft. E SW cor. Sec. 22, Blk. 26 ... Top lime 2,445 ft.; 8¼-in. casing 2,460 ft.; gas show 2,615 ft.

Southern Crude O. P. Co.'s No. 5 Hendricks T-67-2-D, 990 ft. from W, 2,310 ft. from S, Sec. 28, Blk. 26. ... Drlg. 1,620 ft.

Simms Pet. Co.'s No. 2 Sealey, 2,434 ft. S and 990 ft. W of NE cor. Sec. 50, G.M.M.&A. Sur. ... Rotary rig.

Southern Crude O. P. Co.'s No. 2 Hendricks T-88-CX, Sec. 21, Blk. 26	Cem. 8¼-in. casing 2,482 ft.; top lime 2,470 ft.; drlg. 2,590 ft.
Southern Crude O. P. Co.'s No. 3 Hendricks T-88-CX, 2,310 ft. N and 330 ft. W of SE cor. Sec. 21, Blk. 26	Top lime 2,457 ft.; cem. 8¼-in. casing 2,469 ft.; drlg. plug.
Southern Crude O. P. Co.'s No. 6 Hendricks T-88-N, 1,320 ft. N and W of SE cor. Sec. 28, Blk. 26, School Land	Top lime 2,420 ft.; total depth 2,829 ft.; running 6-in. casing.
Southern Crude O. P. Co.'s No. 7 Hendricks T-88-N, 2,320 ft. N and 2,640 ft. W of SE cor. Sec. 28, Blk. 26	Top lime 2,546 ft.; top pay 2,955 ft.; total depth 2,956 ft.
Southern Crude O. P. Co.'s No. 2 Hendricks T-88-P, Sec. 28, Blk. 26	Top lime 2,532 ft.; cem. 8-in. casing 2,549 ft.
Southern Crude O. P. Co.'s No. 3 Hendricks T-88-R, 1,320 ft. N and E of SW Sec. 27, Blk. 26	Top lime 2,365 ft.; gas show 2,630 ft.; top pay 2,655 ft.; flowing 20 Bbls. hourly.
Texas Canadian Oil Co.'s No. 1 Kloh-Rumsey, 1,320 ft. N and E of SW cor. Sec. 35, Blk. 46, T.&P.R.R. Sur.	Shut down 4,011 ft. for orders.
Tidal Oil Co.'s No. 1 Scarborough, 330 ft. S and E of NW SE SE Sec. 1, Blk. C-22	Total depth 2,929 ft.; cem. 6-in. casing 2,921 ft.; rigging up standard tools.

CALIFORNIA EXPANSION IS OUTSTANDING FEATURE

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stocks on April 30 were less than on the same date in 1928. California gasoline stocks at refineries totaled 12,577,000 bbls. on April 30, 1928, and 12,023,000 bbls. on April 30, 1929. Since the first of the year California stocks have increased 3,102,000 bbls., which compares with an accumulation of 13,949,000 bbls. for the country as a whole.

California's production of other refinery products, particularly fuel oil, has also increased. However, the main market significance so far as the industry generally is concerned lies in the enlarged shipments of gasoline. The present gasoline output greatly exceeds the local requirements of the West Coast area and Pacific Coast export trade, formerly the sole outlet for California gasoline. Due to that fact, increasing quantities are finding their way to the East Coast markets and export channels where the gasoline comes in direct competition with material from refiners in other parts of the United States. In the opinion of some observers, these coastal and export shipments will be controlling factors in the gasoline market generally over the remainder of the year.

Other Sections

It would be incorrect to credit California with all the excess crude production which has proved a burden to the industry in several sections. The government's report shows that Oklahoma producers the first four months of 1929 increased their production about 6,000,000 bbls. and Texas 11,000,000 bbls. when compared with the same period in 1928.

Several of the smaller producing areas also increased their production. In regard to stocks, the data show that there has been a steady demand for the increased production of the high gravity fields in Oklahoma so there has been little change in inventories over the past few months, a situation which is held responsible for the recent advances in crude oil prices. The crude oil stock accumulations east of California in recent months have come to a large extent from West Texas development. The bulk of this crude moves south to the coast and for that reason is not a direct factor in the interior market except as the coastal refining areas overlap in the sale of their products.

Imports Increase

Imports of crude petroleum which showed a large increase in 1928 over 1927 continue to increase in volume although still a minor factor when compared to the domestic supply. Imports of crude oil for the first four months totaled 29,709,000 bbls. which compares with the 24,687,000-bbl. figure for the same period in 1928. Shipments of Venezuela crude jumped from 14,139,000 bbls. to 20,537,000 bbls. Shipments from Mexico dropped from 4,919,000 bbls. to 3,012,000 bbls.

That the bulk of these imports are being refined is shown in the government reports on crude oil run to stills. For the first four months foreign crude runs to stills increased from 21,971,000 bbls. to 25,779,000 bbls.

The outstanding development in the gasoline situation for the first four months of 1929 were the heavy shipments. A normal increase in gasoline demand has been predicted for 1929 and on this basis an increase of 10,000,000 bbls. in gasoline shipments the first four months of this year over the same period last year was the maximum to be expected. The shipments, however, actually increased 15,585,000 bbls. or 14.5 per cent.

These heavy shipments prevented a large accumulation of gasoline stocks so that on May 1 so far as gasoline stocks were concerned the refinery situation was far from hopeless. It is probable that later reports will tend to bring the figures on shipments more in line with expectations as part of the heavy shipments from refineries was due to storage programs of jobbers rather than reflecting actual consumption of gasoline. However, the data on shipments do point to an exceptionally heavy gasoline demand for 1929.

This increase in total demand of 14.5 per cent was divided between an increase of 13.9 per cent in domestic demand and an increase of 18.1 per cent in exports. Imports of gasoline increased but they still constitute less than 2 per cent of the total supply in United States.

Gasoline stocks on April 30 after a decline during April, were 5,826,000 bbls. greater than on the same date in 1928. As previously stated these stocks on April 30 cannot be considered excessive when considered from the angle of increased demand. Total gasoline supply, however, with an 18.8 per cent increase over the same period last year, was greater than even a 14.5 per cent increase in demand could justify. A continuance of this relative situation between supply and demand is not to be desired by refiners who wish to maintain a strong market over the year.

Kerosene

The fact that kerosene yields from crude oil continue to decrease is responsible for the maintenance of a relatively healthy situation between supply and demand in that product so far this year. Although crude oil runs to stills increased 10.9 per cent the first four months of this year kerosene production dropped from 19,555,000 bbls. the first four months of 1928 to 18,084,000 bbls. for the same period this year.

Imports of kerosene are of no consequence so that this decrease of 1,471,000 bbls. in domestic output made it possible for refiners to secure satisfactory prices in all areas for domestic and export movement. In the consuming end the situation was the reverse of last year. In 1928, there was a slight decrease in the domestic demand for kerosene with an increase in exports which resulted in an increase for total demand. For the first four months of this year exports were not as great as for the same period last year but the domestic demand increased. The total demand for the two periods was practically the same.

The total demand exceeded the total supply by 1,504,000 bbls. the first four months of this year so that the stocks were reduced that amount. Stocks on April 30 were 764,000 bbls. or 9.9 per cent lower than on the same date last year.

Fuel Oil and Gas Oil

It is difficult to secure an accurate picture of supply and demand in regard to fuel oil and gas oil for the reason that government data in California include some heavy crude oil. In the accompanying table an attempt has been made to summarize the situation with the data on demand an estimate.

The data show that the low prices which have prevailed for fuel oil and gas oil is resulting in an increased demand. For the first four months the total demand increased 28,170,000 bbls. or 22.7 per cent over the same period in 1928. Stocks increased over 2,000,000 bbls. in April but for the period extending from January 1 to April 30 the demand exceeded the supply by 2,265,000 bbls.

There was a large excess of fuel oil and gas oil over the greater part of last year and this situation is reflected in the figures which show that stocks on April 30, 1929, were 9,766,000 bbls. greater than on the same date in 1928.

Lubricating Oil

The lubricating oil situation is similar to that of kerosene. The increased crude oil run to stills has not resulted in a corresponding increase in production of lubs. The production for the first four months was 11,290,000 bbls. or only 3,000 bbls. more than the same period in 1928.

There has also been little change in the demand situation. The domestic demand for the four-month periods showed an increase of 22,000 bbls. while exports increased 147,000 bbls. Stocks for the year ending April 30 decreased 323,000 bbls. or 4 per cent.

Petroleum Wax

The explanation of the slump in the petroleum wax market since the first of the year is readily apparent from a study of the government data. After an exceptionally favorable market over the greater part of 1928 the supply exceeded the demand and prices have slumped since the first of the year.

The trouble according to government data is due more to a slump in the demand than to increased output. The total supply increased 6.8 per cent while the total demand slumped 33.7 per cent for the four-month periods. The slump in demand comes from a 29.8 per cent decrease in domestic demand and a 35.4 per cent decrease in exports. Due to this excess of supply over demand the stocks of petroleum wax on April 30 were 55.8 per cent greater than on the same date in 1928. Prices have slumped to the point where it is expected that the demand will improve over the balance of the year.

GOVERNMENT UPHELD IN CRACKING CASES

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the long tube, the oil gradually vaporizes, but both the liquids and the vapors and both the uncracked and the cracked materials go along together and are subject to cracking for approximately the same length of time.

"Tube cracking processes, on account of requiring a shorter time, necessitate the use of a higher temperature in order to produce a reasonable amount of cracking, and they characteristically have operated with temperatures considerably above those used in bulk pressure distillation, and have a time of contact that is measured in minutes rather than in hours and days. All such tube cracking processes have some pressure at the inlet of the coil and in some cases they carry pressure clear through the coil.

"Fourth. Flash or film cracking—in which all the cracking is produced by almost instantaneous contact of oil or oil vapors with a very hot surface. If liquid oil is fed to the apparatus, it is generally dripped or sprayed on the hot surfaces, where it is vaporized and cracked almost simultaneously.

"In this method there is nothing more than a spray or film of liquid oil in the cracking zone and the cracking contact is a matter of seconds or fractions of a second, while the temperatures required are those of red heat of metal or higher. The pressure is usually substantially atmospheric because of the difficulty of building containers which will hold pressure at such temperatures. The hot surfaces employed may be a hot metal retort or frequently of brick or the like.

"While there are references in the exhibited prior art to flash cracking apparatus and processes, none of the patents here in question involve such methods or apparatus, and such references are not applicable to the patents of the defendants.

"The patents in suit employ either bulk-pressure distillation or tube cracking, and to be applicable, the reference must come within these two classifications.

"Bulk distillation at atmospheric pressure has been referred to because it is the method by which is produced what has been referred to in the record as 'straightrun' gasoline."

Government's Contention

Each of the primary defendants developed its own processes and constructed apparatus with which to apply its processes, for which it, or its assignors, obtained patents. The Gasoline Products Co. secured or acquired nine patents, The Texas Company 29 patents, the Standard Oil Co. of Indiana 23 patents, the Standard Oil Co. of New Jersey 15 patents, and the Standard Oil Co. of New York 1 patent. There are 77 patents involved.

Each primary defendant has given a name to its process. The Standard Oil Co. of Indiana adopted what is called the Burton process—the Burton shell still and the Burton tube stills with or without bubble power. The Texas Company adopted what is called the Holmes-Manley process. The Gasoline Products Co. followed the teaching of Cross patents. The Standard Oil of New Jersey followed what is known as the Tube-and-Tank process.

The Government contends that these patents were all improvement patents covering minor or trivial advances over the prior art and that each should be given a very narrow construction. It asserts that defendants used them to tie together and reinforce the fences which surrounded their field of monopoly and thereby effectually accomplish what could not, and would not have been accomplished by the patentees singly or individually.

Master's Report

To discuss each and every patent involved in the cross-license agreements would cover many pages. The master has gone over those selected by the defendants for attack and has given a careful statement of the processes and apparatus there disclosed. The summary of his study appeared in The Oil and Gas Journal February 8, 1927, page 31.

The Government singled out two of the patents (property of The Texas Company) for special attack. It charged that their issuance had been secured through fraud.

The master found against the petitioner on this issue.

Fleming process. The master also found against the petitioner on the issues raised by the supplemental petition wherein defendant M. W. Kellogg Co. and the primary defendants were charged with a conspiracy to increase their monopoly of the cracking processes by injuring a competitor (Fleming) who was engaged in selling licenses under his cracking process patents.

Petitioner's Exceptions

The questions presented by petitioner's exceptions to the report are: (1) Does the evidence support (a) the master's findings as to the Adams patents and (b) the master's findings respecting the conduct of M. W. Kellogg Co. and the four primary defendants? (2) May petitioner in this suit question the validity or the scope of the patents which it issued? (3) If the preceding question be answered in the affirmative, are the patents valid? (4) Do the agreements of which petitioner complains violate Section 1 or 2 of the Antitrust Act?

1. The Adams patent. Petitioner attacks two patents upon the ground that they were obtained by fraud. The master found:

"The affidavit of Besselman was signed and sworn to by him; that at the time he

knew the contents thereof; that the statements contained therein were true; and that his testimony in this case was false, and that the Government has failed in its contention that letters patent to Joseph H. Adams No. 1,320,354 granted October 28, 1919, on application serial No. 530,852, filed December, 1909, were obtained by means of fraudulent and deceptive affidavits and statements."

Our study of the testimony does not justify a disturbance of this unequivocal finding by the trier of fact who saw and heard the witnesses who so flatly contradicted each other.

The same disposition may be made of the Government's contention respecting M. W. Kellogg & Co.

Respecting queries 2 and 3, little need be said in view of our ultimate conclusion as to the validity of the patents. This court is divided respecting the right of the Government to attack the validity of the patents in these proceedings. We are satisfied, however, that we may inquire into the prior art to ascertain the scope of the claims of the various patents involved.

Having made that study, we conclude that: (a) All of the patents cover improvements only. (b) None of them are basic or pioneer patents. (c) All claims should be construed accordingly.

It by no means follows, however, that because the claims of a patent merely cover improvements, and must be denied a wide range of equivalency, that they are unimportant or that the inventor did not make a real contribution to the art. Moreover, if a narrow patent is valid, it furnishes as sufficient a consideration for a contract based on it as would a pioneer or basic patent and it is as legitimate a subject of cross-license agreement as is a basic or pioneer patent.

Without discussing each patent at length and in detail, we will content ourselves with a statement of our conclusion. For the purposes of this suit, we are not willing to disturb the master's finding that the patents are valid.

Validity of Agreements

Seventy-nine agreements are involved. They may be referred to for convenience sake as cross-licensing and sublicensing agreements although some of them include provisions that deal with subjects other than licenses.

Opposing counsel approach the consideration of them from different angles. Petitioner asserts that all of the provisions of all agreements must be read together while defendants contend that the validity of each provision must be separately considered and its legality determined without regard to its effect upon any of the parties other than those who executed the agreement.

Petitioner contends that the primary defendants restrained trade and commerce in cracked gasoline; that such control is obtained through the so-called cross-license agreements; that by such agreements the parties thereto secure an unauthorized extension of the patent monopoly both as to time and subject matter, and an avoidance of any attack upon the validity of the patents by any of the defendants. It also, so it is asserted, restricted production, destroyed competition, imposed unjustifiable royalties, and restricted the use of the process by others to the detriment of the consumer.

Defendants contend that the grant of a patent is a grant of a monopoly; that while such a monopoly is a burden on commerce, it is a lawful burden; that the owner of a patent may grant licenses thereunder, whether few or many, and the effect of each license agreements is to partially lift the lawful monopoly evidenced by the patent. In short, it is argued, licenses promote instead of restrict competition and the license agreements, no matter what their conditions may be, necessarily extend the freedom to manufacture and to sell the patented article. They therefore contend their arguments are not within the condemnation of the Sherman Antitrust Law.

The ownership of a patent unquestionably carries with it certain rights, monopolistic in character. Nevertheless, the owner of a patent can use it as property only subject to the Sherman Antitrust Law. That is to say, A, B, C, and D cannot legally contract respecting their patents in violation of the terms of this law. The patent may confer a right which, distinct from the agreement, is in the nature of a monopoly. To this extent the Sherman Antitrust Law does not apply to patent monopolies. And of course this right to enjoy a patent monopoly carries with it certain rights incident thereto. Among them are the right to royalties, to grant licenses, as well as the right to handicap competitors by withholding licenses.

Limits of Patent

As the owner of a patent, one may exclusively occupy the field covered by the patent. He may contract as an incident thereto. He may license one and refuse to license another. But he cannot, merely because of his ownership of a patent, enter into an agreement with another party, perhaps also the owner of a patent, which has for its object or its inevitable result, the burdening of commerce or the lessening of competition beyond the limits of the patent monopoly.

Applying this rule, it is apparent that defendants were permitted to execute cross-licenses to one another. They were not, however, permitted to enter into agreements the effect of which was to extend their monopoly beyond the limitations which were fixed by the patent grant. Or, to express it differently, where the contract would be illegal because of violation of the Sherman Antitrust Law, were it not for the existing patents, the illegality is eliminated merely to the extent of the monopoly represented by the patent grant and to rights which necessarily flow therefrom.

Before examining the agreements and applying the validity test, the following facts constitute a necessary background.

Gasoline. Gasoline produced by the pressure cracking process may be used separately or freely mixed with the same product manufactured by any of the other processes. In other words, the product—gasoline—is the same for all practical purposes whether produced by pressure cracking or by the straightrun or other processes. Gasoline, however produced, is not a commodity covered by a patent.

The percentage of gasoline produced by the cracking process has increased steadily during the last 15 years. Not less than 25 per cent of all gasoline manufactured in the United States was in 1925 produced by pressure cracking processes and this percentage is constantly increasing.

Volume of business. The master found that "the aggregate cracking capacity of all the defendants (primary and secondary) is about 55 per cent of the total cracking capacity in the United States." Petitioner asserts that the "primary defendants in 1921 produced 72.96 per cent of all cracked gasoline refined in the United States while in 1924 they produced 81.05 per cent"; that in 1921 the primary defendants and their licensees refined 86.39 per cent while in 1924 the same parties refined 93.96 per cent of all cracked gasoline produced in the country. It is the actual production rather than "cracking capacity" that is significant. We accept the production test rather than the capacity test.

Infringement by Primary Defendants

The defendants contend and the master found that the cross-license agreements were made in good faith and to avoid patent infringement suits.

It appears, however, that the principal patents of the primary defendants which are the subject of the cross-license agreements may each be practiced without infringing the other. For example, the so-called Burton patents of the Standard Oil of Indiana are not infringed by the Holmes-Manley process of The Texas Company nor the Cross patents of the Gasoline Products Co., nor by the Tube-and-Tank process. Subsequent to the execution of the agreements, each of the primary defendants continued to follow the teachings of its own patent. The processes described in the claims of many patents were not adopted by any primary defendant not the owner of such patents. Some of the claims of some of the patents are not followed by any of the primary defendants.

The decision then quotes excerpts from Agreements No. 31, 55 and 74, published in The Oil and Gas Journal July 3, 1924.

Cited as Violation

Section 13 of Agreement 31 is cited by petitioner as one covenant of this contract which violates the Sherman Act. It obligates The Texas Company to sell, under certain conditions, gasoline by it manufactured to the Standard Oil Co. of Indiana. It is not restricted to gasoline manufactured by any process covered by any patent. This covenant clearly violates the Sherman Act.

A patentee may, as against its agent or licensee, impose conditions respecting sales, the price and the territory whereat and wherein the patented article may be sold. For the purpose of this argument it may be conceded that such restrictive covenant may include a commodity which, though not covered by a patent, is the product of a patented process. But such covenant cannot include an unpatented article not made by patentee's patented process or apparatus. The vice of this covenant lies in the fact that there is no restriction as to the commodity which was the subject of the agreement. The product was gasoline manufactured by pressure cracking, irrespective of the process used in producing it.

The defendants asserted, however, that this covenant never has been and never will be enforced, and therefore is of no significance. When this statement was made on oral argument, the court suggested, in order to test the good faith of defendants' assertion, that the parties agree to its elimination. Defendants accepted the suggestion and filed with the court an agreement in the nature of a waiver of this provision of Agreement 31. To this action, the petitioner strenuously objected, insisting that defendants should not be permitted to avoid the effect of this litigation by an eleventh hour withdrawal from its previously asserted right to thus contract. Were this the only provision objected to, we would view the litigation as happily ended. But there are other agreements which are attacked and, if the attacks be substained, a decree for petitioner must necessarily follow.

For example, Sections 1, 2, 3 and 4 of this same Agreement 31 provide that the contracting parties shall acknowledge the validity of all patents that may be issued to the other "as and when issued under which it becomes licensed hereunder." Section 1 of the same agreement defines the term "patent rights" as including all patents and pending applications "and all inventions relating to processes and apparatus for the manufacture of gasoline and other light oils by cracking under pressure, acquired prior to January 1, 1937." Section 3 grants, each to the other, licenses to continue to the expiration of any patents included within the aforesaid "patent rights."

These agreements do not expire until 17 years from January 1, 1937. Or, stated in another way, the agreement which was made August 26, 1921, protected patents from attack which might be issued as late as January 1, 1937, and which would not expire until 1954.

Agreements Not Sustained

Such agreements cannot be sustained. While a patent is presumptively valid, many of them, although duly issued, are invalid for various reasons. The public, in whose interest the patent laws are enacted, is ordinarily protected against the burden of such void patent grants by the action of competitors of the patentee who, prompted by motives of self-preservation, refuse to recognize these void patents and therefore successfully contest them. The public is thereby relieved of the burden which their existence entails.

By these clauses of Agreement 31 and similar clauses in the other agreements, the parties purchased immunity from attack on their patents. Tying the hands and sealing the lips of the only parties who would ordinarily stand suit and contest the validity of the patents, the primary defendants attempted to fasten on the public burdens which it was not the purpose of the patent law to impose. Such agreements violate the letter and the spirit of the patent law and are contrary to public policy. The far-reaching consequences of such agreements is illustrated by the present case.

Further attack upon this agreement is made because of the effect of subsequently executed agreements, which not only dealt with royalties, but enlarged the scope of this agreement by including other defendants who were large producers and refiners of gasoline. Agreements 55 and 74 include the other two primary defendants, the Standard Oil of New Jersey and the Gasoline Products Co. Section 8 of Agreement 55 obligated The Texas Company to open negotiations with the Standard Oil of Indiana and Standard Oil of New Jersey:

". . . to the end of acquiring for the Gasoline Products Co. the right of conferring upon its licensees, present and future, in addition to the nonexclusive patents under the license rights of The Texas Company a similar nonexclusive license from the Standard Oil Co. of Indiana and the Standard Oil Co. of New Jersey."

Agreement 55 dealt with and fixed the royalties which were to be charged, and provided for a division of these royalties between the primary defendants. The plan is made more effective by the two other agreements, 73 and 75, the first being between Standard Oil Co. of New Jersey, Standard Oil Co. of Indiana and The Texas Company and the latter agreement being between the Standard Oil Co. of New Jersey and the Gasoline Products Co.

In determining their validity, these various agreements must be read together. They interlock. Viewed as one, they present a situation where the primary defendants not only fixed royalties as between themselves but for their sublicensees, and provided for a division among themselves of the moneys received from such royalties.

No Logical Relation

There appears no logical relation between the protection which attached to the exclusive right which arose from the issuance of the patents and the agreements which the holders of the patents generally entered into. The agreements therefore transcend what was necessary to protect the patents and come within the operation of the Antitrust Act.

It may be conceded that A may fix the royalty which he shall exact from B as arbitrarily as he chooses. Such patentee may even, within a limited field, grant such licenses upon condition that his competitor execute to him a license to use said competitor's patented process. But such patentees may not, when to a large degree they dominate the trade, enter into an agreement for the pooling of their royalties and thereby increase the tribute exacted from the users.

To illustrate, A has a valid patent used by numerous licensees. B has a valid patent which other licensees use. Notwithstanding A and B each has a monopoly, there is competition. But it would be a plain violation of the Antitrust Act for A and B, thus having certain monopolies which are in competition one with another, to combine to eliminate competition between their monopolies and impose or maintain burdens which exist, not by virtue of the monopolies, but by virtue of the agreements dealing with their monopolies as property.

It is in this respect that these various agreements step outside the limits of lawful monopolies which arose from the issuance of the patents. The patent monopoly itself is a property right and agreements in respect thereto must be subject to the same antimonopoly tests as any other property rights.

There is no substantial difference between agreements entered into by competing packing companies respecting the prices at which, or territories wherein, their products may be sold and an agreement between holders of patent monopolies which fix the rates of royalties that shall be charged to licensees.

Pooling Agreements

In fact, we may go further and say that pooling agreements between holders

of patents whereby royalties are fixed and the division of proceeds derived from royalties provided for, are within the condemnation of the Sherman Antitrust Law. True, in such cases, the court must inquire into the effect and extent of such agreements. But if the evidence, as here, discloses a domination of the trade and an additional burden by virtue of the agreement, the act is violated. And there can be no legitimate question respecting the extent of the domination by the primary defendants. Whether we accept petitioner's version of the testimony or the defendants' statement of the extent to which these defendants dominate the industry, the conclusion must be the same. In either case the percentage is so large as to necessitate the conclusion that the royalties materially and substantially affect the price of gasoline.

In so far as these agreements are license agreements, they are unobjectionable. To the extent that they go beyond license agreements they are subject to the inhibitions of the Sherman Act.

It is worthy of note that none of the primary defendants use any considerable number of the patents of the other. This is established by the admission of the defendants. An independent producer, however, could hardly engage in the process of refining gas by a cracking process without infringing one or more of the patented cracking processes. One such refiner might infringe the process of one primary defendant while another independent refiner would run afoul of another patent. Under these circumstances, the holders of the patent, in fixing royalties by agreement, are in effect and for all practical purposes, entering into an agreement to fix prices. For it is affirmatively established that the royalties fixed in the agreements and maintained by the agreements is a substantial part of the cost of refining. In fact, the evidence justifies a finding that such royalties nearly equal and sometimes exceed the profits of outside refiners.

Price Fixing

If then, the royalty charges directly affect the price at which the commodity can be produced, and if the agreements have for their object or for their necessary effect, the fixing and maintaining of royalties, they cannot be distinguished from other agreements which have been condemned, the purpose or necessary result of which was to fix the price of a commodity. United States v. Trenton Potteries, 273 U. S. 392, 397-398. The court there said:

"The aim and result of every price-fixing agreement, if effective, is the elimination of one form of competition. The power to fix prices, whether reasonably exercised or not, involves power to control the market and to fix arbitrary and unreasonable prices. The reasonable price fixed today may through economic and business changes become the unreasonable price of tomorrow. Once established, it may be maintained unchanged because of the absence of competition secured by the agreement for a price reasonable when fixed. Agreements which create such potential power may well be held to be in themselves unreasonable or unlawful restraints, without the necessity of minute inquiry whether a particular price is reasonable or unreasonable as fixed and without placing on the Government in enforcing the Sherman Law the burden of ascertaining from day to day whether it has become unreasonable through the mere variation of economic conditions. Moreover, in the absence of express legislation requiring it, we should hesitate to adopt a construction making the difference between legal and illegal conduct in the field of business relations depend upon so uncertain a test as whether prices are reasonable—a determination which can be satisfactorily made only after a complete survey of our economic organization and a choice between rival philosophies. Thus viewed, the Sherman Law is not only a prohibition against the infliction of a particular type of public injury. It 'is a limitation of rights, . . . which may be pushed to evil consequences and therefore restrained."

Defining the term "unreasonable" the court says:

"That only those restraints upon interstate commerce which are unreasonable are prohibited by the Sherman Law was the rule laid down by the opinions of this court in the Standard Oil and Tobacco cases. But it does not follow that agreements to fix or maintain prices are reasonable restraints and therefore permitted by the statute, merely because the prices themselves are reasonable. Reasonableness is not a concept of definite and unchanging content. Its meaning necessarily yaries in the different fields of the law, because it is used as a convenient summary of the dominant considerations which control in the application of legal doctrines. Our view of what is a reasonable restraint of commerce is controlled by the recognized purpose of the Sherman Law itself. Whether this type of restraint is reasonable or not must be judged in part at least in the light of its effect on competition, for whatever difference of opinion there may be among economists as to the social and economic desirability of an unrestrained competitive system, it cannot be doubted that the Sherman Law and the judicial decisions interpreting it are based upon the assumption that the public interest is best protected from the evils of monopoly and price control by the maintenance of competition."

The petitioner is entitled to a decree in its favor in accordance with the views hereinbefore expressed. Counsel for both parties will confer upon the terms of such decree before submitting it to the court. If unable to agree as to its terms, it will be presented to this court on due notice.

Anderson, circuit judge. I am unable to concur in the views expressed by the majority of the court. In my judgment the Government's exceptions to the master's report should be overruled, the master's report should be approved, and a decree entered dismissing the bill.

ONLY DRY HOLES IN EAST CENTRAL TEXAS

By Neil Williams

CORSICANA, Tex., June 17.—Abandonment of Humble Oil & Refining Co.'s No. 1 Holt at Boggy Creek marked the failure of that company to extend production of the field 4,000 feet to the north. The test was quit as dry in the Georgetown lime at 3,778 feet. The test is on the east side of the dome with the only production so far on the southeast, although the company has carried on a consistent wildcatting program not only on the northeast but also on the northwest and other parts of the dome.

Six other wildcats in East Central Texas were reported abandoned, but these included one geological test in Van Zandt County, Pure Oil Co.'s No. 1 Gilbert, which was quit at 1,030 feet. Cosden and associates finally quit their No. 2 Douglass on the Keechi Dome, Anderson County, abandoned the hole as junked. The test has been fishing stuck drill stem several months with the bottom of the hole in chalk at 3,861 feet.

O. W. Killam's No. 1 Jones, Hampton Survey, Falls County, has been abandoned as an oil test. It tested fresh water at a total depth of 2,445 feet and will be completed as an artesian water well. Gruver & Stiles' No. 2 Stiles, Satan Survey, Falls County, which has been shut down in a salt water sand at 1,137 feet, was abandoned. Hoosier and associates' No. 1 Naussbaum, Currie district, Freestone County, was quit in a salt water sand at 3,295-3,319 feet. Henderson Petroleum Co.'s No. 1 Cade, Dorsey Survey, Henderson County, which has been standing in sandy shale at 1,436 feet, has been abandoned.

At Boggy Creek, on the Anderson and Cherokee County line, Humble Oil & Refining Co.'s No. 1 Beard, south side, is drilling shale at 1,938 feet. This company's No. 3 Holloway is drilling shale and boulders at 1,601 feet. No. 2-B Elliott & Clark is drilling plug at 3,644 feet. No. 3-A Elliott & Clark is rigged up and No. 2-A Todd is drilling shale at 3,605 feet.

On the Posey Saline, 8 miles south of Boggy Creek in Anderson County, Humble Oil & Refining Co.'s No. 3-A Southern Pine has cemented casing at 2,080 feet. Pure Oil Co.'s No. 1 Jackson, Bethel Dome, Anderson County, is drilling chalk at 3,555 feet.

In Cherokee County, the State of Texas' No. 1 Asylum is drilling in gyp and lime at 3,215 feet. Caruth & Stewart's No. 2 Flowers, Falls County, is drilling at 1,142 feet. Humble Oil & Refining Co.'s No. 1 Pucek, Falls County, is drilling water sand at 3,059 feet.

J. Harper and associates' No. 1 Jones, Hill County, has set casing to test a sand showing oil at 700 feet. C. F. Lytle and associates' No. 1 Thompson, Mexia, Limestone County, Trinity sand test, is waiting cement to set at 6,061 feet. Segal and associates' No. 1 Runnels, Santy Survey, Limestone County, is fishing stuck drill stem at 2,935 feet.

O. W. Killam's No. 1 Roach, Toby Survey, McLennan County, has been shut down in lime and shale at 1,138 feet. This operators' No. 3 Bryant, Naber Survey, is drilling lime and shale at 1,023 feet.

Alexander and associates' No. 1 Anderson, Webb Survey, Robertson County, is drilling sand and shale at 2,345 feet. Magnolia Petroleum Co.'s No. 1 Duran, Pine Hill, Rusk County, is drilling chalk at 2,387 feet. Amerada Petroleum Corp.'s No. 1 Wade, Upshur County, Fields Survey, is drilling hard lime at 4,387 feet.

Daily average production of East Central Texas for the week ending June 15 was:

Boggy Creek	2,727
Cedar Creek	130
Currie	401
Mexia	5,436
Minerva	663
Nigger Creek	340
Powell	8,079
Richland	355
Thrall	34
Wortham	1,200
Total	19,365
Total previous week	19,586
Decrease	221

National Engineering Societies Meet Next Week at Penn State

STATE COLLEGE, Pa., June 15.—Two national engineering societies will hold their annual meetings at the Pennsylvania State College this month. The Oil and Gas Power Division of the American Association of Mechanical Engineers, for the second consecutive year, will hold its national meeting at Penn State from June 24 to 27, in conjunction with the annual oil and gas power conference of the college. Prior to this meeting the American Society of Refrigeration Engineers will be here for a two-day meeting from June 20 to 22.

One complete session of the oil and gas power meeting will be devoted to Diesel engines. A discussion of the design, pumps and injection valves, combustion and commercial application of high-speed oil engines will be a part of the program. Other topics to be discussed include modern refinements in Diesel power plants, Diesel engines for peak load service, some results of the Penn State oil spray research, maintenance and cost of Diesel engine power, and marine Diesel engine operation.

The program for the meeting of the American Society of Refrigerating Engineers will include a discussion of oil engines for compressors, temperature and gas measurements, handling perishable foods, cold storage and a survey of household refrigeration. In addition there will be a discussion and demonstration of methods for conducting tests on heat transmission at the thermal testing plant of the college, supplemented by an exhibit of every obtainable variety of insulating materials.

IMPORTANT LEASE PURCHASE

BRADFORD, Pa., June 15.—The Bradford Producing Co. has purchased the Artley, Daniels and Doubleday leases of the Pressure Oil Co., totaling 190 acres, in the Duke Center area of Otto Township.

While the consideration has not been announced, the transfer represents one of the largest deals in the present activity in the Bradford Field.

The huge oil deal was consummated the latter part of last week.

OIL WELL SUPPLY CO. TRANSFERS J. M. POST

The Oil Well Supply Co. has announced the transfer of J. M. Post, Mid-Continent district manager, from Tulsa

J. M. Post

to take charge of the company's stores east of the Mississippi River, making his headquarters in Oil City, Pa. This transfer is in line with other consolidations being made by the company, which in the last year has moved its manufacturing plant and several departments from Pittsburgh, Pa., to Oil City, the company's headquarters.

THIS PUMPER LAUGHS AT WEST TEXAS SAND

Here's one way of beating the sand which covers West Texas oil fields, making walking from one well to another a tedious, leg-wearying procedure. It's a lookout tower erected by the Simms Oil Co. on University state land in Crane

County. It raises the pumper's level of vision about 10 feet, enabling him to watch from its platform the wells under his care. The action of the walking-beam, easily observed from his point of vantage, tells him whether or not a well is pumping properly. A floodlight makes this oversight possible at night as well as day.

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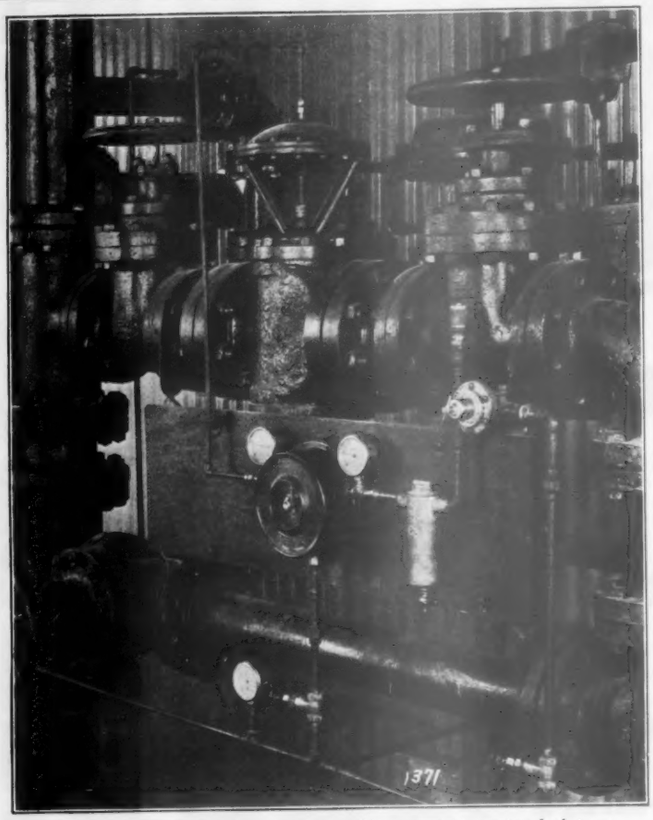

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SHELL UNION'S PROSPEROUS YEAR; VAN ECK AN OIL CONSERVATIONIST

J. C. van Eck, president of Shell Union Oil Corp., in remarks accompanying the annual report to shareholders, states:

"Although earnings for the year were substantially above those for 1927, fundamental conditions existing in the oil industry remained precarious throughout the year on account of the continued serious overproduction of crude oil. Only through the concerted efforts of several groups of producers in important fields and the growing desire throughout the industry to eliminate waste of valuable natural resources, in accordance with policies established by Federal Oil Conservation Board and supported by state authorities, was it possible to reduce to some extent the production of needless oil and gas, with a corresponding improvement in the economic conditions of the industry."

Believes in Conservation

With regard to development, Mr. Van Eck says:

"Throughout 1928 efforts were continued to bring about a more rational and sane development of new oil fields, and some measure of success has been attained by the industry in curtailing production of such newly discovered oil pools as those in Seminole district in Oklahoma and in West Texas. Your directors are in full sympathy with these efforts, and your companies are co-operating to the utmost.

"It should be realized that overproduction not only necessitates large expenditure of money to take care of oil that cannot be sold, and must be stored with consequent leakage and evaporation loss, but also causes excessive competition which is detrimental to the industry and to the public at large. In many instances present prices cannot possibly yield an adequate return on investment or compensate the producer for the risk taken.

"Economic and actual waste can only be avoided and some stabilization achieved if production is brought down to the actual needs of the demand. Fortunately, the industry is fully awake to the situation. It is hoped that the joint efforts now being attempted may bring about conditions that will once more enable the industry to prosper in proportion to the risk, and justify the immense capital investment, without which the industry cannot develop."

Retard Wildcatting

Pointing to the fact that wildcat drilling received no check in 1928, and the year witnessed drilling of the deepest wells in the history of the industry, Mr. Van Eck states:

"In view of the many uses to which the people of the United States now put crude oil and its products, and the necessity that ample supplies of crude shall be available in the future, it seems of the utmost importance that development of these new sources of supply of crude oil, not required now, should be retarded until they are required in the future, and that, in addition to this conservation, constant advantake should be taken of the development of refinery technique which is steadily increasing the output of gasoline from the barrel of crude oil.

"It seems more important than ever that the development of new fields should continue along more rational lines by joint action and co-operation of the parties interested in production. Recommendations of the Federal Oil Conservation Board and the actions of several states in considering legislation to prevent waste of valuable resources of petroleum and gas should contribute to the solution of the present serious problems."

The company deducted for depletion, depreciation, drilling expenses and abandonments in 1928, the sum of $44,012,082. These deductions were made at same rate as in previous years and compared with total of $33,471,231 in 1927.

Special reserve totals $15,000,000, and the directors believe no additions to this fund are called for at present.

There was substantial further increase in surplus and "it seems advisable to the directors to continue to strengthen this account more adequately to protect interest requirements and maintenance of the present dividend policy."

An Immense Production

Production of crude of Shell Oil Co., Shell Petroleum Corp. and Wolverine Petroleum Corp. for 1928 was 55,477,307 bbls. gross, or 47,788,351 bbls. net. This also includes Shell Union's share of production of Comar Oil Co. Actual daily production of all properties of combined companies at December 31, 1928, was 124,502 bbls. net, against about 107,995 net December 31, 1927.

Production in Coalinga, Mount Poso and Round Mountain Fields in California remained closed in 1928, and Shell Oil Co. restricted output to lowest possible level consistent with competitive conditions. Deeper-sand drilling at Santa Fe Springs and Signal Hill increased production in California.

Proration in Texas

Discussing Texas operations, Mr. Van Eck says:

"In the Hendricks district the proration agreement limited output of the field to 175,000 bbls. a day, of which Shell Petroleum Corp. had about 12 per cent. Production in Yates Pool was also restricted. These proration agreements have resulted in reducing oil production considerably, and their effect in retarding drilling has been even more pronounced. Although the production of the Shell Petroleum Corp. could be substantially increased if the present restrictions were removed, the directors feel that these restrictions are in the best interests of the company and of the industry."

A new refinery is under construction at Houston, to run West Texas crude, and is expected to be in operation by the middle of this year.

At the end of the year the daily crude and pressure distillate intake capacity of the company's refineries was 240,000 bbls., against 220,000 bbls. at December 31, 1927. Intake of refineries last year totaled 60,209,057 bbls. of crude oil, against 53,536,326 bbls. in 1927.

Production of casinghead gasoline in 1928 was 160,096,991 U.S. gallons, compared with 138,574,062 in 1927. Additional casinghead gasoline plants were installed and additions made to existing plants.

The company owns and controls 3,085 miles of trunk and main pipe lines. The new line from West Texas to the new refinery at Houston is about completed, and the company will be able to send West Texas crude direct to its refineries at Arkansas City, Wood River and East Chicago, and to the refinery at Houston for delivery of finished products to other domestic markets on Atlantic Coast, or for the export trade.

Sales for the year amounted to $179,195,391. The actual volume of sales of all products increased 27 per cent over the previous year.

Negotiations for the acquisition of certain assets of the New England Oil Refining Co., owning large distributing facilities in New England, were successfully concluded at the beginning of 1929. A new company, Shell Eastern Petroleum Products, Inc., has been formed to take over these assets, and will provide additional outlets to markets of the Atlantic seaboard, constituting last link in nationwide chain for distribution of Shell products.

Substantial interest was acquired in the Flintkote Co. during 1928.

To carry out program for increasing distributing and marketing facilities, the directors offered 3,000,000 shares of common stock to shareholders of record December 5, 1928, at $10 a share. The new capital, $30,000,000, was made available at the beginning of 1929.

Profits in 1928

The report also gives the profit and loss account for 1928. Gross earnings at $68,538,815 show an advance of over

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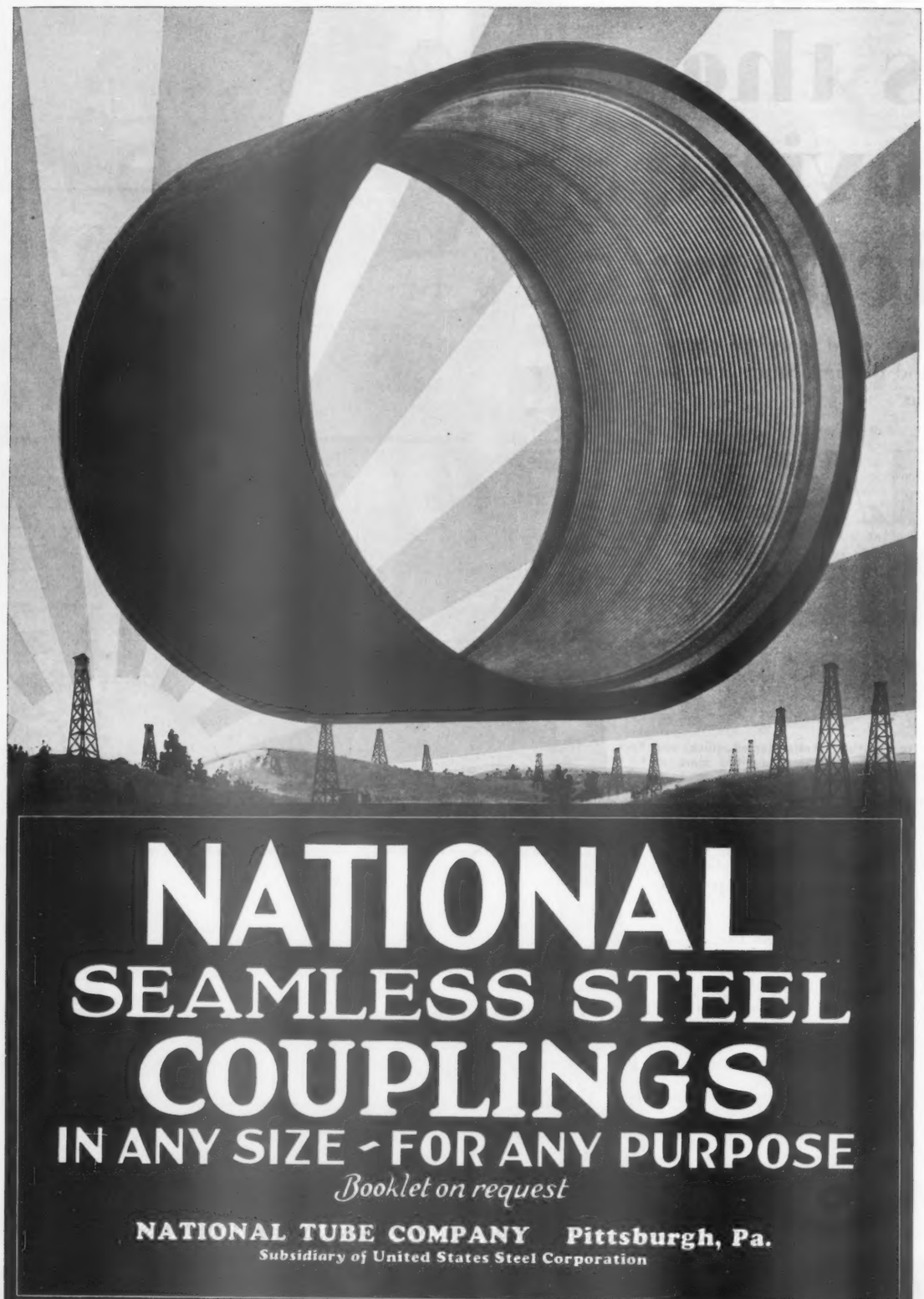
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$22,000,000 on the year, while the net profit of $20,395,021 compares with $11,344,914 for 1927. The net profit was struck after allowing $44,012,082 for depletion, depreciation, drilling expenses, etc., being at the same rate as in the previous year, when $33,471,231 was so applied.

KENTUCKY-TENNESSEE

(Continued from Page 69)

Daniel was the discoverer of the Bartlett Pool. It is estimated better than 1,000,000 feet.

The Ohio Oil Co.'s Nos. 5 and 6, on the J. A. Kirk farm, in the Bartlett Pool, are rated better than 50 bbls. each. Snowden-McSweeney's Nos. 5 and 6 on the Duke heirs' farm, same pool, produced 80 and 10 bbls. respectively. No. 7, same farm, is good for 20 bbls. Wood Oil Co.'s No. 1 R. D. Funk, also in the Bartlett Pool, produced an initial of 80 bbls. Cumberland Petroleum Co.'s No. 18, on the Bob Hamilton 176 acres, in the eastern portion of the Ambrose-Weller Pool, is a 15-bbl. pumper.

Daviess County Wells

Creek Drilling Co.'s No. 1, on the L. M. Powers farm, in the St. Joseph Pool, in the western part of Daviess County, is rated around 75 bbls. initial. Huff and Calderwood's No. 3, on the W. A. McCandless farm, in the Salmon Pool, is rated at 75 bbls. Leeper Oil Co.'s No. 7, on the W. L. Barnett 50 acres, and near the Ohio County line, and 1,000 feet from the north line and 200 feet from the west line, pumped 10 bbls. initial. Johnson & Young's second test on the J. L. and N. C. Howard farm, produced 20 bbls. the first 24 hours. Eastern Gulf Oil Co.'s No. 1, on the National Bank Co. farm, pumped 7 bbls initial. Thrasher and Brewer's test, on the Edward Crow farm, east of the Fuqua well, proved a duster, as did Young, Goldburg and others' No. 3 on the Lindsay Purcell farm, in the Red Hill district.

Other Completions

In the Princeton Field, in Caldwell County, the Missouri-Kansas Pipe Line Co.'s wildcat, on the McNeeley farm, is estimated around 15 bbls., and a nice flow of gas. In the Scottsville Field of Allen County, in the Gainesville area, E. D. Defenbaugh's No. 4, on the L. Beam farm, was dry at 330 feet.

Total runs made from wells served by the Illinois Pipe Line Co., in western Kentucky for May, totaled 207,176.13 bbls.

Young, Goldburg and others are drilling No. 4 on the Lindsay Purcell farm, in the Red Hill district of Daviess County. Creek Drilling Co. is drilling No. 2 on the Tom Flynn farm. The Prairie Oil & Gas Co. is drilling on the Sharp farm, near Laffoon, not far from the King Pool. Mecca Oil Co. is drilling on the Zula Johnson farm, near Cane Run School, between Laffoon and Habit, also in Daviess County.

Wood Oil Co., Inc., has started a test on the Schaeffer farm, 3 miles east of the Ohio Oil Co.'s big well on the Kennedy farm, in the Greenville Field, in Muhlenburg County. E. M. Treat & Co. are also drilling a well in the same county on the Finis farm.

In Daviess County, L. S. Robbins is drilling on the Rollie Ambrose farm, in the Salmon Pool. Cumberland Petroleum Co. is drilling No. 5 S. H. Easton 75 acres, in the Burton Pool, and No. 5 on the R. Jackson, in the Friendship Chapel area. The Jetsan Oil Co. and others are drilling Nos. 3 and 4 on the Steve Hinton farm, in the Jones Pool. James C. Ellis and others are drilling a second test on the Hansford heirs, in the Utica Pool. The Petroleum Co. is drilling a well on the Louis Burns, just west of this company's good production on the Everette Burns farm, in the Utica Pool.

The Creek Drilling Co. has abandoned No. 1 on the James E. Brown lease as well as No. 1 on the Dutch Tompkins lease in the Utica Pool, of Daviess County, both rather large initial producers, but failed to continue a yield sufficient to justify pumping.

In Ohio County, the Wood Oil Co. is drilling Nos. 2 and 3 on the R. D. Funk farm, in the Bartlett Pool. Snowden-McSweeney are doing the same with Nos. 8 and 9 Duke heirs' farm, same field, and the Ohio Oil Co. is drilling Nos. 7 and 8 on the J. A. Kirk farm, same pool. Hupp, Duff and others are drilling No. 9 L. Trodgen, and C. E. Daugherty and others drilling No. 5 L. Trodgen, all in the same pool.

EASTERN FIELDS

(Continued from Page 69)

Carnegie Gas Co. completed No. 2 on the Stephen Grant farm to the Fifth sand at 2,965 feet and it is a very light gas well. In Burning Springs district, Wirt County, George B. Vance completed No. 44 in the Cow Run sand on the W. M. Gibson farm good for 1½ bbls.

In Liberty district, Marshall County, the Manufacturers Light & Heat Co. has a duster at a second test on the William Meighan farm. In the same district, the Woodruff Oil & Gas Co. has a gasser in the Gordon sand in No. 2 on the H. Ernst farm. In Cameron district, Guy Peterson's test on the Mrs. Della Reese farm is a light gasser in the Big Injun sand. In McClellan district, Doddridge County, the Starkey Oil Co. completed a gasser in the Gordon stray sand on the John Flanagan farm.

On Elk River, Big Sandy district, Kanawha County, 300 feet east of S. H. Hett & Co.'s test on the J. V. Derrick farm, the United Fuel Gas Co. has started to drill No. 2,566 Derrick heirs deeper from the Maxon sand. A rig has been completed for the South Penn Oil Co.'s No. 7 on the C. S. McCarty farm, Ravenswood district, Jackson County, where this company has had notable success In Lee district, Calhoun County, N. F. Crowley has completed a rig for his No. 2 on the A. L. Betts farm.

SOUTHWEST PENNSYLVANIA

In Buffalo Township, Butler County, the T. W. Phillips Gas & Oil Co. completed a test on the Figler farm to the so-called Fifth sand showing for 20 bbls. In Fawn Township, Allegheny County, in advance of this pool M. M. Markle is drilling on his own farm hoping to extend the limits of this pool. In Springhill Township, Greene County, Covert Brothers have completed a test on the L. Whipkey farm to the Gordon and swabbed 30 bbls. the first 48 hours.

CENTRAL WEST FIELDS

(Continued from Page 72)

second test on the Mable C. Rabberman, in fractional Section 13, the gas being found in the Maxon at from 930 to 940 feet. Kemrow Co. has an average sized gas well on the F. and D. Dawson, Section 30, at a depth of from 670 to 681 feet. Ohio Fuel Gas Co. is drilling No. 1-3,540 on the A. M. Hummel, Section 30. In Penn Township, Henning Brothers have an average gas producer in No. 21 on the C. J. Kennard, Section 11, at from 1,610 to 1,632 feet; total depth 1,638 feet. Dover Oil & Gas Co. made a location for No. 25 on the Joseph L. Stoker, Section 35.

Scioto Wildcat

Report comes from Portsmouth, the county seat of Scioto County, an Ohio River town in the extreme southern part of Ohio, that the C. L. Williams Oil & Gas Co., of Pittsburgh, Pa., at a depth of only 350 feet had struck a high grade of oil on the George L. Davis farm on the Scioto Trail, 8 miles north of Portsmouth. It is the intention to put down several other tests on this large farm. Leases have also been taken on the Simon Benner, Mrs. Katherine Feurt and S. S. Bierley farms and the company plans to sink tests on them in the near future.

Relative to oil being discovered on the Davis farm, C. L. Williams says: "I made a study of the acreage by means of the torsion balance. However, the particular instrument used is one which I have used very successfully over a number of years, and differs somewhat from the German-made instrument. By this means and running levels and from data obtained from Marvin Clark and others who have done some local drill-

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ing, I came to the conclusion that there was a well defined structure running northeast and southwest, and extending from Lucasville to a point almost within the north boundary of the city of Portsmouth. After several days of study I located a well on the George L. Davis farm in the valley locally known as Nigger Run and drilled a test to the depth of 350 feet or a distance of 50 feet into the Ohio shale. The results were very pleasing to my company.

"The Gwinner Oil Co., of Pittsburgh, Pa., through President E. W. Gwinner, has given the driller, J. E. Kessler, of Wellston, Ohio, a second contract and another well will be started at once. The No. 1 Davis came in making a nice show of gas, and after a 70-quart shot of nitro made 2 bbls. of high grade oil, from the Berea sandstone. This formation was struck at a distance of 170 feet from the surface and continued down to 305 feet. According to the geologist, it should be possible to get much larger wells on this structure, and I hope to open up a nice paying oil and gas field in the near future along the Scioto Trail and near Portsmouth."

Back in the early days of the old Lima Field, Mr. Panhurst, at that time a well-known oil operator of Fostoria, Ohio, who has since passed away, concluded that oil in commercial quantities could be found among the hills of southern Ohio and he with his associates drilled a well to a shallow depth south of Peebles, in Adams County, and evidently had a small producer, but naturally big production was looked for and when the well developed only a few barrels, further prospecting was given up. Adams County adjoins Scioto County on the west and the well referred to lies almost in a direct west direction from the Davis farm well. The supposition is that the day is not far distant when small production will be found along the Ohio River in most every county between Cincinnati on the west and Wheeling, W. Va., on the east. It is along this section of the State that the shale beds are rich in oil as many tests have been made there for a number of years, not in drilling deep for oil but by the mining of the shales, and getting the tests in that manner instead of drilling, but the shallow drilling is the most economical as it is the safest way to hunt the oil and gas.

Coshocton County

In Coshocton County, the Leonard Oil & Gas Co.'s test, on the Levi Norris, Section 19, Pike Township, is reported showing for a 5-bbl. initial producer.

INDIANA

The completion of a 2,000,000-foot gas well by Charles A. Taliaferro, Jr., 400 feet from the north line and 660 feet from the west line of the Lew George farm, in the NW Section 29, Washington Township, Pike County, is the most important development since the last review of the Indiana fields. The well topped the sand at 1,123 feet and was drilled only 1 foot in the sand when it commenced to blow, but was shut in and will be connected to the gas lines running through that part of the field. In Madison Township, same county, the Murphy Oil Co. abandoned old No. 1 on the Ray E. Gladish farm, Section 30.

After working along for more than a year L. L. Gee and others have at last drilled in No. 2 in the southeast corner of the Tillman Gaither farm, in the SW Section 22, Veale Township, Daviess County, which proved dry at a total depth of 1,357 feet.

Charles W. Scott and others' No. 3 in the northeast corner of the Charles W. Scott farm, in the NW NE, Section 6, Fairbanks Township, Sullivan County, produced 20 bbls. initial at 2,200 feet. J. L. Bowman, receiver, is drilling No. 3 Elmer E. Williams, Section 5, same township.

Packard Oil Co.'s No. 1 Ray, 600 feet from the north line and 50 feet from the west line of the lease, produced 15 bbls. at 450 feet. Ellis & Young's No. 1 William Bretz, SW Section 3, Ohio Township, Spencer County, was dry at 1,060 feet. The Packard's Ray well is in Section 11, Cass Township, same county. Packard Oil Co.'s No. 1 Henry Devillez, Section 18, Troy Township, Perry County, between Tell City and Troy, was dry at 1,034 feet. Saddle Creek Oil Co.'s test on the John Fox, Section 35, Clear Creek Township, Monroe County, was dry, although it had a slight showing at 1,625 feet. The Tawa Oil Co. found a dry hole on the W. B. Lewis, in California Township, Starke County, at 1,495 feet. E. M. Treat and others' No. 1 William Walters, near Gentryville Pool, in Warrick County, was dry at 1,178 feet.

Oklandon Gas & Oil Co.'s test at the town of Oklandon, in Marion County, was dry at 946 feet.

State Report

The following report was compiled by Paul F. Simpson, the newly made state gas supervisor, department of Conservation, Division of Geology of Indianapolis, Ind.:

Gibson County—The Dave Hutchinson No. 5, which was drilled deeper by the Texana Oil Co., was finally abandoned a dry hole. This well is in Section 13, Center Township. J. A. Woods' No. 1, in the NE Section 4, Union Township, was abandoned by the Ohio Oil Co. at 1,779 feet.

Lagrange County—James W. Hunt is now drilling again in the Ivy Chrysler's No. 2 well, in Clay Township, northeast of Lagrange, after a lapse of several months. The drill is down 700 feet. A considerable quantity of gas has been reported.

Madison County—The Pendleton Natural Gas Co. will drill two more gas wells. One is to be on the Taylor and Brown farm, and the other has not been located.

Marion County—The Oklandon Gas & Oil Co. completed No. 5 well in Oklandon, dry at 946 feet.

Marshall County—W. B. Michel, S. E. Boys and others have placed a rig on the Lamson farm. They will drill close to an old well which struck a trace of oil, but is now standing full of water.

Monroe County—The well on the John Fox farm, near Fairfax in Section 35, Clear Creek Township, was shot with 180 quarts. This well, drilled by B. F. Morgan and others, encountered a showing of oil at 1,625 feet, after it had been practically abandoned. Several newspapers reported a 100-bbl. gusher, but no authentic report of production has been received, and the well will probably be abandoned.

Perry County—Devillez' No. 1 in Section 18, Troy Township, drilled by the Packard Oil Co., was abandoned at 1,034 feet.

Pike County—The Indiana Oil & Gas Corp. has practically completed the laying of a gas main, which will supply gas to Princeton, Vincennes, Oakland City and Washington. James Fettinger's No. 2 drilled by the Bement Gas Co., in Section 19, Patoka Township, is producing 250,000 feet from a depth of 1,206 feet. The Texana Oil Co. is still drilling its deep test, No. 1 John Ford, in Location No. 9, Clay Township, and will possibly go to the Trenton. A 20-bbl. flow of oil was cased off at 2,050 feet. The Bement Gas Co. obtained a production of 1,000,000 feet from the Aaron George well, 3 miles east of Petersburg. This will be used to supply the Petersburg mains. The same company was drilling for gas on the Della Kime farm, Lot 12, Clay Township, when it struck 30 bbls. initial. This came from 13 feet in the Barker sand at 1,235 feet. The Illpava Oil Co.'s No. 1 Neal Lindy, in Section 31, Clay Township, is reported producing 1,250,000 feet of gas.

Shelby County—The Morristown Gas Co. is drilling at the west edge of town, near Road No. 52.

Spencer County—Libb and others are drilling on the William Arnold farm, Section 17, Huff Township. Sharp Randall's well on the Raymond Bretz farm, Section 3, Ohio Township, is dry at 1,297 feet. J. Ellis and L. C. Young got a showing at 1,002 feet in the William Bretz No. 1 in Section 3, same township, after drilling 28 feet into the sand. A well was recently started on the Brown Trust Co.'s farm near Rockport. The Carlton No. 3 in Section 11, Huff Township, reported as producing from 472

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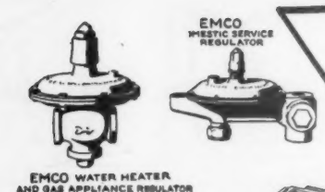

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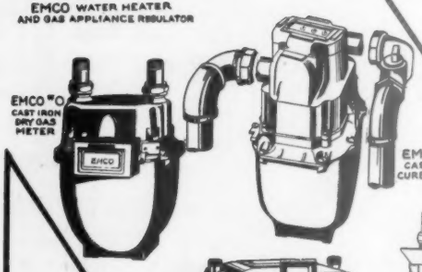

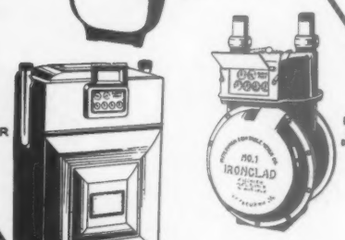

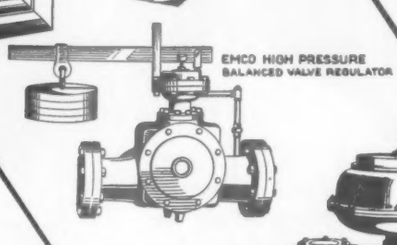

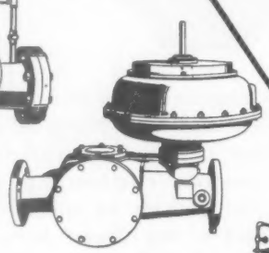

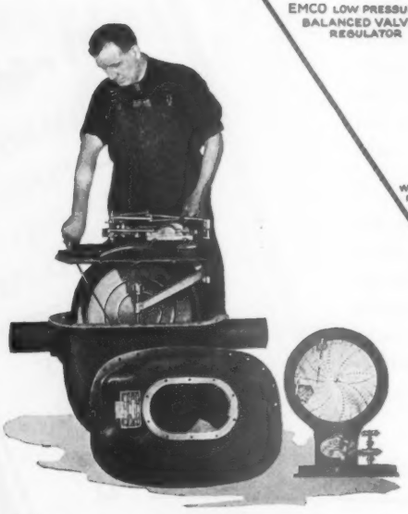

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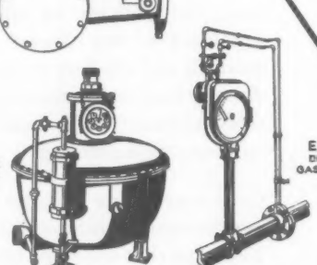

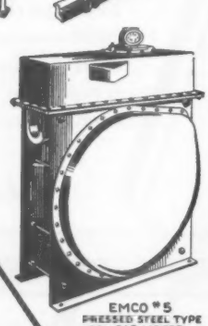

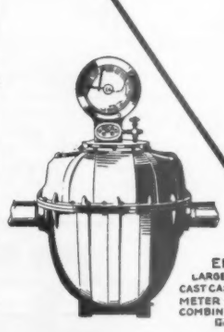

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feet, is now said to be dry, and may be drilled to the Barlow sand. E. M. Treat & Co. got an initial production of 40 bbls. from the George Cissna well, which is completed. This is in Section 35-6s-6w. The oil sand at 1,280-90 feet was shot with 40 quarts. The R. W. Richardson, Jr., Co.'s well on the Terrell Weatherholt farm, in Ohio Township, is dry at 1,442 feet. At 1,330 feet, 30 of sand was encountered, but only a slight showing of oil.

Starke County—A showing of oil was found in the William B. Lewis well, Section 10, California Township, at a depth of 1,495 feet, but it was abandoned and plugged.

Sullivan County—The wells in the Wabash River bottoms have not been pumped for more than a month, due to the high water. The well being drilled by Scott, Morris and Whitlock on the W. E. Maple farm, in Section 4, Gill Township, was dry and abandoned. The Twin Creek Oil Co. has rigged up the No. 3 Elmore Williams in Section 5-9n-10w. C. W. Scott and others are drilling at 1,950 in the No. 3 C. W. Scott, Section 6-9n-10w. The Dome Gas Co. has resumed drilling operations in the Morris Unger well in Section 26, Gill Township. It stopped at 600 feet last fall so the gas might be used in the mains, but is now down 1,200 feet. Burns and Cary abandoned a well on the J. W. Watson farm in Section 31, Turman Township. They had a nice showing of oil at 870 feet, but got too much water. They will probably drill again.

Vigo County—The Siosi Oil Co. is drilling at 1,500 feet in the No. 2 Joe Thomas in Section 2-10n-10w. Its No. 6 F. J. Williams was reported to have an initial production of 150 bbls. from 2,210 feet. This is in Section 32, Prairie Creek Township.

Warrick County—E. M. Treat & Co. abandoned and plugged a well on the William Walters farm, Section 35, a short distance northwest of Gentryville. It tested 1 bbl. from the depth of 1,178 feet.

The average daily production in the southwestern fields of Indiana for March and April was 2,500 bbls., a total of 76,000 bbls. per month. For the northeastern area the average was 200 bbls. per day, or 6,000 bbls. per month. The total production from the southwestern fields for the first four months of 1929 was 316,000 bbls., compared with 290,000 bbls. for the corresponding period last year. However, the northeastern fields showed a decrease in production, with only 20,000 bbls, against 30,000 bbls. for the first four months of 1928.

ILLINOIS

The most important development in any area of Illinois at this time is the new field opened up some time ago by the Ohio Oil Co., in Sugar Loaf Township, St. Clair County, in the extreme western part of the State. This field is a comparatively shallow development and requires only a few days to complete a well. The best of the late completions is the St. Clair County Oil Co.'s No. 1 on the J. W. Hamilton lot, in the NE Section 28, Sugar Loaf Township, with an initial production of 220 bbls. at from 487-555 feet. Morris & Yeager's No. 2 in the northeast corner of the C. Mansette, NE Section 28, produced an initial of 90 bbls. at 478-559 feet. Ohio Oil Co.'s No. 1, 200 feet from the north line and 200 feet east of the highway, in the NE SE Section 29, produced 66 bbls. initial at 485-546 feet. Same company's No. 3 well, 200 feet from the north line and 200 feet west of the highway on the Matilda Dyroff, NE SE, Section 28, produced 45 bbls. at 480-540 feet.

Orville McGuiggan and others are reported to have drilled a dry hole near Flora, in the southern part of Clay County and was said to have been a deep test.

In the Allendale Field, Wabash Township, Wabash County, the Ridge Farm Oil & Gas Co.'s No. 8, 1,000 feet from the south line and 200 feet from the east line of the W. M. Price farm, in the SW Section 14, produced 10 bbls. natural at 1,568-74 feet. Haven and others' test in the northeast corner of the Edward Wright, in the SW Section 14, same township, was dry at 1,590 feet.

The Ohio Oil Co. brought in an unusually good producer in No. 14 in the northwest corner of the J. W. Clark No. 2 farm, in the SW Section 2, Dennison Township, Lawrence County, which produced 55 bbls. from the Richley sand at 1,290-1,308 feet. In Bridgeport Township, same county, the Ohio Oil Co. abandoned Nos. 2 and 3 J. M. Atkins, Section 31, and Nos. 3 and 5 on the H. P. Shephard, Sections 29 and 30, same township.

Jesse Gonge abandoned his No. 1 on his own property, Section 30, Centralia Township, Marion County.

CALIFORNIA FIELDS

(Continued from Page 63)

ing the objections which exist in many localities against the initiation of drilling operations.

It is probable some operators will reduce drilling operations by a mutual exchange of lots but it is very doubtful if any great amount of projected development work will be averted. There is no way of forcing either operators or landowners to limit drilling operations and since all attempts to pool diversified holdings have been unsuccessful it is not logical to assume that any great amount of drilling will be prevented in the Santa Barbara Field. The General Petroleum Corp. closed a deal with the Olympic Oil & Refining Co. a few days ago and the former will take over the holdings of the latter, including the discovery well, and prosecute a consistent development campaign. The General Petroleum has already started five new wells in conformity with this agreement and will be obliged to start additional work in future. A total of 64 permits have been issued by the Santa Barbara City Council and the recent passage of an ordinance opening 1,200 acres more on July 6 will result in the filing of perhaps 50 more.

Kettleman Hills

With five wells standing cemented in the north dome at Kettleman Hills a number of interesting developments may be expected and drilling operations are going ahead a lot faster than many anticipated. The five drilling projects which have been cemented above the pay are the Standard's No. 8 in Section 1-22-17, bottomed at 6,205 feet; the Marland's No. 8 in Section 12-22-17, at 5,959 feet; No. 2 Elliott and No. 4 Kennedy of the Milham Exploration Co. down 6,248 feet and 6,406 feet, respectively, and the Shell's No. 1 Armstrong in Section 8-22-17, down 6,390 feet. The Standard has drilled the cement out of its No. 81 in Section 11-22-17 and a water test is being made on the 8⅝-inch water string, landed at 6,025 feet, 100 feet off bottom. In addition to the six wells mentioned there are 12 others rotating ahead below 5,000 feet and 11 more making hole above this point. The Standard, which owns every alternate 640 acres in fee, is naturally the largest single operator, with 11 strings of tools in operation and two more rigs in course of construction. The Milham Exploration and Shell each has three wells under way, followed by the Associated, General Petroleum and Marland with two each.

The Standard is rushing work ahead on its two camps at Kettleman Hills and ample housing facilities will be available to take care of several hundred men. Rush orders have also been issued to push ahead completion of the company's new natural gasoline plant, now well under way. The Texas Company is also working to the maximum in order to finish the six new units being added to its Kettleman Hills natural gasoline plant, the original capacity of which has proved insufficient to handle the entire output of the Milham's discovery well. The Texas Company plant, when completed will have a rated capacity of approximately 125,000,000 feet of natural gas per day and when operating at a maximum capacity should produce approximately 110,000 gallons of natural gasoline daily, as the natural gas from Kettleman Hills averages a little less than 1 gallon for each 1,000 feet of gas treated. The augmented plant of The Texas Company should be finished around the first of next month in plenty of time to take care of the new producer which the Milham Exploration Co. expects to finish very shortly. The present scope of development work at Kettleman Hills will probably result in the early erection of several natural gasoline plants if operators fail to ratify the tentative pact proposed several weeks ago as the result of which new wells will be shut in immediately upon completion. The Standard has just completed tentative plans for a second major natural gasoline plant in this field and construction work will probably get under way shortly unless drilling operations are mutually restricted.

Midway-Sunset

The Sheehan sand in the Maricopa Flats area of the Midway-Sunset Field of Kern County will probably be given a chance to exhibit its potentialities some time within two or three weeks as several potential producers should be in a position to make a bid for production. The Signal Oil & Gas Co. is making preparations to finish its No. 3 Sheehan. No. 2 Sheehan, which focused the attention of operators on this area by registering substantial production a few months ago, is still holding up in good shape, present production approximating 750 bbls. per day. The initial daily output of No. 3 Sheehan is not expected to approach the initial of No. 2 because of its inferior location on the structure, but No. 4 Sheehan, which is standing cemented at 2,464 feet, will probably exceed the output of the discovery well.

The North American Consolidated, which has assumed an aggressive development campaign in this area, has two wells nearing completion, both of which will be drilled out within a few days. If these two projects come up to expectations and register favorable production, the North American will undoubtedly greatly augment present operations. The Doyle Petroleum, California Western Oil Co., Kern Sunset and Rio Grande Oil Co. are also anxiously awaiting the outcome of their respective tests as the results attained will be immediately reflected in increased development. In the Midway section of the Midway-Sunset Field, the Republic Petroleum and Chanslor-Canfield Midway Oil Co., are each starting a new well in Section 8-32-23. The Republic area, which is being developed by these two companies, is several miles northwest of the Maricopa Flats where a localized development campaign is under way by different operators.

The resumption of production activities in the Mount Poso Field by the General Petroleum on May 1 has greatly stimulated drilling activities and a further expansion can be anticipated. This company finished No. 26 Glide at Mount Poso a few days ago, making 180 bbls. daily on the beam from 1,600 feet. The Petroleum Securities expects to finish five new producers within 60 days and although only one is under way the other four will be spudded in shortly as rigs are in course of construction. The Union Oil Co. is rigging up No. 2 Tribe in Section 28-27-28 and tentative locations have been staked for Nos. 4 and 5 on the S. & M. property. It is likely that additional transportation facilities will be provided for the Mount Poso Field soon as the route for two lines has already been surveyed. It is probable also that pipe line facilities will shortly be extended into the Round Mountain Field. The Shell has considerable acreage in both fields and has approximately 4,000 bbls. per day shut in at Mount Poso and about 2,000 bbls. per day curtailed in the Round Mountain Field. To move this oil through its own facilities the Shell would be obliged to extend its Coalinga-Martinez line southward to Kern River, a distance of about 75 miles, but in order to eliminate this capital expenditure it is quite likely the Shell will utilize the pipe line facilities of some other company. Facilities of the Union and Associated would tie into this picture very nicely as existing pipe lines of both concerns extend northward from Kern River to Coalinga and would only require the laying of a short 15 or 20-mile extension.

Fruitvale

Two new wells were finished in the Fruitvale Field of Kern County, both registering favorable production. The Mohawk Oil Co. ushered in the week with a 571-bbl. producer when No. 4 Red Ribbon in Section 27-29-27 was finished at 4,158 feet. The Western Gulf Oil Co., discoverer of the Fruitvale Field, brought in No. 1 Sweitzer under a natural flow doing 689 bbls. of 21.4 gravity oil daily from 3,878 feet. This completion gives the Western Gulf Oil Co. 10 producers capable of producing 4,000 bbls. per day. Operators in the Fruitvale Field have the unique distinction of being unable to dispose of any considerable amount of production at any price due to the fact that the gasoline content of this crude is unusually low and the fuel oil properties inferior to other grades of unrefinable oil which can be purchased in a much lower price range. The Gulf interests recently lifted a cargo of Fruitvale crude at Port San Luis for experimental work to determine the feasibility of utilizing it in some of its various eastern refineries but the result has not yet been revealed. There was no change in the status of producing wells on the Kern front and although development work has been reduced to a minimum six strings of tools are in operation. Two wells were finished in the Belridge Field, the Berry Oil Co.'s No. 30 in Section 31-28-21 being good for 45 bbls. per day on the beam from 715 feet, and the Ohio Oil Co.'s No. 25 in Section 30-28-21 about 30 bbls. daily from 680 feet.

Northern California Wildcats

The discovery of a prolific shallow field at Elwood by the Barnsdall and subsequent discovery of commercial production by the Western Oil & Refining Co. at Santa Barbara has caused progressive operators to watch wildcat exploration in the coastal area very closely. The necessity of keeping close tab on all exploration work in this area is obvious because the status of any one of these wildcats under way might be changed over night due to the shallow depth at which the pay is encountered in this section. Wildcatters are especially interested in the outcome of the General Petroleum's No. 1 More, about 3 miles east of the Elwood Field in Section 21-4-26. This test, down 3,530 feet a day or two ago, has shown considerable gas and the action of the company's field department in coring continuously indicates its favorable condition from a geological standpoint. The well is located at a normal production interval and the company stands a chance of opening a new field, although due consideration must be given to wildcat mortality.

The Continental Oil Co.'s No. 1 Ballard, a few hundred feet southeast of a gas well drilled by this company at Carpenteria a few months ago, is nearing the critical stage and well logs indicate a close correlation between the two wells. This acreage being prospected by the Continental Oil Co. is a few miles from Carpenteria in Santa Barbara County and about 5 miles east of the Summerland oil field where shallow production has been developed in the open ocean for a number of years. No. 1 Baillard is showing increased gas pressure with depth and it is needless to say operators are closely watching developments due to the unusually heavy volume of gas encountered in the Continental's original well which was shut in as a precautionary measure previous to being given a conclusive production test. The unusually large amount of gas encountered in the original well, together with the proximity of oil outcrops along the ocean front, confirms the opinion that the Continental will ultimately be successful in opening up a new field at this point.

The Pacific Western Oil Co.'s No. 1 Naples, the Shell's No. 1 Orella, near Goleta, and the Western Gulf's No. 1 Point Conception are other wildcats which may bear watching. The Western Gulf picked up the top of the Vaqueros at 3,088 feet and with an oil sand cored at 3,115 feet preparations are being made to land pipe for an early test. The project has unusual merit and a new field may eventually be opened at this point. The Point Conception area is approximately 25 miles due west of the Elwood Field and being in a direct line along the ocean front is located at a

strategic interval. George F. Getty is abandoning his No. 1 Becker, a deep test drilled in the Summerland Field of Santa Barbara County at 5,041 feet, but will test out for shallow production before plugging back to the surface with cement. The Milham Exploration Co., discoverer of the Kettleman Hills Field of Kings County and the first company in California to develop a commercial gas field, has staked a location for a deep test to be drilled in the Buttonwillow gas field of Kern County in Section 8-28-23. This project will be drilled through the two commercial gas zones and an attempt made to find an oil horizon. Milham geologists believe the Buttonwillow area is considerably higher stratigraphically than the Elk Hills Field, a short distance south, and are of the opinion commercial oil production may be developed if the bit can be carried down to a depth corresponding with the productive formations at Elk Hills.

CANADIAN FIELDS

(Continued from Page 64)

tion 8-19-2w5, is reported through the Dalhousie sand and drilling at 4,095 feet, or about 100 feet off the lime.

Royalite Oil Co.'s No. 6, LSD 16, Section 31-10-2w5, is at 4,531 feet and fishing for 4½-inch casing. Royalite's No. 12, LSD 3, Section 13-20-3w5, is drilling below 4,386 feet. Royalite's No. 16, LSD 2, Section 12-20-3w5, is sidetracking liner at 5,060 feet. Royalite's No. 21, LSD 1, Section 13-20-3w5, is jarring on tools at 4,087 feet. Royalite's No. 23, NW Section 31-19-2w5, is drilling below 3,126 feet.

North West-Associated's No. 1, LSD 6, Section 20-19-2w5, is standing cemented in the lime at 5,188 feet. Advance Oil Co.'s No. 5, LSD 16, Section 19-19-2w5, is setting 8¼-inch casing at 3,469 feet. Mayland Oil Co.'s No. 1, LSD 10, Section 17-19-2w5, is at 5,404 feet and waiting for rotary equipment.

Imperial to Drill Four

Imperial Oil, Ltd., is preparing to drill four new wells in the south end of the field upon acreage of other companies. These include Baltic Oil's No. 1, west of the Home Oil Co.'s acreage; Sterling Pacific Oils' No. 1, LSD 15, Section 33-18-2w5; Lowery Petroleums' No. 1, which has derrick up in NW Section 17-19-2w5; and Mayland Oil Co.'s No. 3, also in Section 17-19-2w5. These tests are to be under way early in July. A fifth test will be Hargal Oils' No. 1. The sixth new test will be Home Oil Co.'s No. 5, to be drilled in Section 20-19-2w5.

In the Central Field, Calmont Oils' No. 1, LSD 2, Section 1-20-3w5, is drilling past the lost tools and close to the bottom of the original hole, which was down 5,650 feet. Oil is standing 2,000 feet in the hole. Okalta Oils' No. 1, LSD 1, Section 1-20-3w5, on an eight-hour test showed a recovery of 180 bbls., or around 540 bbls. a day.

Spooner Oils' No. 2, Section 24-20-3w5, is drilling 268 feet in the limestone at 5,534 feet depth, with gas flow increased to around 9,000,000 feet, and 90 bbls. potential crude naphtha recovery. Great West Oils' No. 2 is to start drilling on the New Black Diamond structure before August 1. Freeman-Lundy Syndicate's No. 1, LSD 10, Section 1-20-3w5, is reported below 3,000 feet.

South End of Field

In the south end of the Turner Valley Field, Commonwealth Petroleum's No. 2, LSD 7, Section 9-19-2w5, has derrick up. Alberta Pacific Consolidated's No. 1, LSD 5, Section 20-19-2w5, is rigging up, to spud in June 15. Alberta Pacific Consolidated's No. 2, same LSD, will spud in July 15. O. E. Olsen of the Noble-Olsen Drilling Co., flew from Tulsa by his airsedan to superintend operations. Hylo Oils' No. 1, LSD 12, Section 4-19-2w5, has derrick up and is installing machinery. Ko-Tops Oils, Ltd. of Calgary, is arranging contract for a test in SW Section 28-18-2w5, to spud in about July 1. Mercury's No. 2, LSD 11, is spudding in. Homestead Oils' No. 1, LSD 5, Section 16-19-2w5, is working on derrick. Sunlight Oils' No. 1, LSD 2, Section 4-19-2w5, is ready to spud in. Miracle Oils' No. 1, LSD 11, same section, has derrick up. Freehold Oil Corp.'s No. 2, LSD 8, Section 20-19-2w5, is rigging up. Structure Oil & Gas Co.'s No. 1, LSD 7, Section 31-19-2w5, has derrick up, to spud in June 15, and has started on No. 2 in LSD 6, Section 12-20-3w5, in the Central Field.

East Crest Oil Co.'s No. 1, LSD 5-6, Section 16-19-2w5, has been attracting attention. At 3,910 feet it got past a lost shoe, but the shot used to break up the casing brought a heavy gas flow with one of the best oil shows yet encountered in the Dalhousie sand. The gas flow bridged the hole 100 feet off bottom, and at last reports drilling was going on with 10-inch tools in a 12-inch hole to clean out the bridge. The test is close to the top of the deep lime, but may be a commercial producer at the present depth.

Calmont Oils' No. 4 is reported rigged up ready to spud in, close to No. 2, LSD 11, Section 20-19-2w5. Calmont's No. 6 is rigging up 450 feet south of No. 2. In the Central Field, Calmont's No. 3, LSD 2, Section 1-20-3w5, is hauling derrick timbers.

In the north end of the field, Calmont's No. 5, LSD 3, Section 34-20-3w5, is working on derrick. Angus Oils' No. 1, LSD 5, Section 3-21-4w5, is reported to have spudded in. Turner Basin's No. 1, LSD 2, Section 27-20-3w5, is rigging up.

Freehold Oil Corp.'s No. 1, SW Section 3-21-3w5, struck a gas flow, estimated 2,000,000 feet a day, shortly after resuming at 2,450 feet. Drilling was resumed after running 14-inch casing to the bottom. Freehold's No. 3 will be located within a few weeks. United Oils' No. 4, LSD 2, Section 24-20-3w5, is working on casing at 5,385 feet and taking considerable light crude production. Anaconda Oils' No. 1, LSD 16, Section 22-20-3w5, has derrick up. Dome Oils' No. 1, Section 24-20-3w5, is reported drilling at 1,700 feet, with a good show of gas.

Hallmark Petroleums' No. 1 has been located in Section 24-20-3w5, northwest of Dome's No. 1 and 1,000 feet north of United's No. 4. Hallmark Petroleums, Ltd. has been organized by Russell V. Johnson, geologist, of Calgary; Charles H. Reed is president and Norman L. Harvey secretary, both of Vancouver, British Columbia. Work will start about July 10. Invaders Petroleum, Ltd. has secured LSDs 9 and 10, Section 9-21-3w5, and located No. 1 test in LSD 10. The company has also secured LSDs 11, 13, 14 and 15 in the same section, the MacKid acreage.. Contract has been let for camp and rig. Officers of Invaders Petroleum, Ltd. are President, W. S. Henderson; vice president, Byron Harmon; directors, Frank Webster, W. Fay Becker, S. G. Carscallen. Acreage adjoins Foothills Oil & Gas Co.'s No. 1 which developed the first deep lime producer in the north end.

New Operations

Herron Petroleum, Ltd. is preparing for work on the Herron structure. The company has elected the following officers: President and managing director, W. S. Herron, Calgary; first vice president, James Stewart, Winnipeg; directors, Frank Riddell, A. E. Jamieson, W. S. Campbell, L. H. Fenerty.

In the Rickert Field, Turner-Wright Petroleums, Ltd. has spudded in. Indian Oils' No. 1 Rickert, LSD 7, Section 24-19-6w5. Quadra Oils' No. 1 is making a tentative location on the Herron structure, to spud in before August 15. Hogan Petroleum, Ltd. is reported to have made a tentative location on the Sinclair structure.

In the Highwood district, Warner Oils' No. 2, LSD 4, Section 28-18-3w5, has spudded in for a test of a new fold of the structure to the west. Banner Oils, Ltd. of Calgary is reported preparing for No. 1 test in LSD 6, Section 34-17-3w5. Ranger Oils' No. 1, LSD 4, Section 6-18-2w5, has derrick timbers on the ground.

The position of the Skiff Field is rather uncertain, and Imperial-Devenish's No. 3, LSD 11, Section 11-5-14w4, bids fair to duplicate the Imperial's Fabyan "mystery well" as a subject of contention. J. H. McLeod, western production manager of Imperial Oil, Ltd. has stated that his company will not do any further drilling in the Skiff area. Following the completion of the Devenish's No. 1 discovery well two years ago, the Imperial company arranged to develop the Skiff acreage, contracting to drill two wells with the option of drilling four more before the fall of 1930. The Imperial-Devenish's No. 2, drilled in LSD 5, Section 27-5-14w4, finished a dry hole. This location was a considerable distance from the discovery well. No. 3 was located close to the discovery. Mr. McLeod states the oil which has reached the top in No. 3 is due solely to accumulation, and that production on the pump will amount to only about 30 bbls. a day. The oil is a 21 gravity crude, and according to other reports the well is flowing a small amount right along.

Meanwhile the Devenish interests are going ahead with Dauntless Oils' No. 1, LSD 9, Section 36-6-15w4, which will test a new section of the field. Lion's Gate Oil Co.'s No. 1, Section 33-6-15w4, has derrick timbers on the ground. Oil from the two Devenish producers will probably be used for drilling.

On the Bear's Den structure 1 mile south of the international boundary, Sunburst-Bear's Den-Watford's No. 1 is reaming down pipe and fighting caving at 2,235 feet, with casing at 2,210 feet. A heavy gas flow cased off at 2,185 feet continues to break through, flinging mud and water over the derrick. Production is looked for in the Baskoo sand at the base of the Kootenai around 2,350 feet. Smith Oil Co. has been incorporated at Shelby, Mont., by a Calgary group including L. L. Smith, J. C. Oswald, Chester M. Barber, George Elliott and George W. McLeod, to drill in the Kevin-Sunburst Field.

West of Coutts, Hol-Gar Petroleum Co.'s No. 1, LSD 1, Section 11-1-17w4, is reported digging cellar. George Muir is field manager and C. J. Freeman head driller. Ko-Top Oils' No. 1, SE Section 2-1-17w4, has derrick timbers on the ground. Sunset Oils, Ltd., and Vanalta Oils, Ltd., of Vancouver, British Columbia, are arranging to drill in this section on acreage of Alberta Pacific Consolidated.

Material for Eagle Butte's No. 2 rotary test has been unloaded at Manyberries.

Viking Gas Field

In the Champion district, Hudson's Bay-Marland Oil Co.'s No. 1 is drilling below 900 feet.

In the Viking gas field east of Edmonton, Hudson's Bay-Marland's No. 2 Viking got a gas flow in the Viking sand at 2,150 feet, estimated good for 8,500,000 feet a day. The gas production will be taken over by Northwestern Utilities, Ltd., of Edmonton. The outfit has been moved to a new location for Northwestern Utilities' No. 17, which has spudded in as a test of the Viking sand. Northwestern Utilities' No. 16 has derrick up. Northwestern Utilities, Ltd., now has 15 producing wells on the line, with an available open flow of 86,750,000 feet a day.

Sasko-Wainwright Oil & Gas Co.'s No. 2, LSD 8, Section 19-45-6w4, has derrick up. Brandon Syndicate is rigging up about 2 miles west of Wainwell's No. 4. Hargal Oils, Ltd., has derrick up for its deep test on the old British Petroleum acreage. Edalta Oils is locating a rotary test.

Toronto-Wainwright Oil Co. represented in Edmonton by John Kenwood, has taken over 10,000 acres from the Britannia Oil Co. of Edmonton and will drill two tests this season. Daugherty Petroleum's No. 1 and Peninsular Petroleum's No. 1 are reported working on derrick. Lloyd's Petroleum's No. 1, LSD 12, Section 6-45-6w4, has derrick up. Wainwright-West's No. 1 has derrick up offsetting Wainwell's No. 4. Beth-Wain Oils' No. 1 is being located close to the Wainwell producers. Admiral Oils' No. 1, LSD 16, Section 36-44-7w4, offsetting Wainwell's No. 1 producer, will spud in about June 25. Blair & Stevens, drilling contractors, are organizing a company to drill on Wainwright acreage.

In the Pigeon Lake district, Globe Drilling Co. is finishing the old Mutual Oil & Gas Co.'s test in Section 14-47-2w4. The Globe company is planning for a deep test if necessary. Some shows of gas were met in the previous drilling.

Ribstone Field

In the Ribstone Field, Meridian Oils' No. 1, LSD 1, Section 16-45-1w4, which got a good show of heavy crude at 1,833 feet, is being given a pumping test. Widely circulated reports of a second strike in this field are officially denied. London-Ribstone Oils' No. 1, LSD 4, Section 10-43-3w4, is reported drilling at 2,433 feet, after encountering several oil shows between 2,145 and 2,150 feet. Samples of the crude are being tested, and additional structure tests will be put down on the London-Ribstone acreage.

Toralta Oil, Ltd., incorporated recently under Dominion charter, has secured 9,500 acres in the Wainwright and High Prairie districts and will start a test about July 15 in the Wainwright Field. Officers are: President, L. B. Duff, Welland; vice president, Charles E. Steele, Port Colborne; general manager, B. J. McCormick, Welland; secretary, A. L. Fletcher, Toronto; treasurer, Thomas Wright, Toronto; directors, James Kerr, Calgary; L. N. Hart and J. M. Aitken, Toronto; Col. D. C. McKenzie, Fort Frances; Senator J. P. Rankin, Stratford.

In the Wildcat Hills, west of Cochrane, Frontier Oils' No. 1 is down 593 feet with 15½-inch casing. P. H. Lowrie of Denver has arrived to take charge of field operations for this and other Canadian Exploration Co. tests.

In the Province of British Columbia, the results secured by British Columbia operators in the Turner Valley Field have stimulated interest in local oil possibilities. Geologists have indicated four possible oil and gas areas in British Columbia, the southern coast of Vancouver Island, Queen Charlotte Islands, Flathead Valley and Peace River district. On Vancouver Island natural gas has been found in small quantities, and geologists regard the Nanaimo series as a possible source of oil. There is considerable evidence of seepage oil on the gulf islands, and oil film has been found at Bennett Bay, Mayne Island. In the Fraser Valley near Vancouver, there was considerable deep drilling some years ago; some natural gas and traces of oil were met. The Sage Creek area in the Flathead district is now being tested. In northern British Columbia the Peace River block is apparently a northerly extension of the foothill belt to which the Turner Valley Field belongs. Outside interests recently bought at government auction a large acreage of oil and gas leases in the Hall's Landing area, south of Revelstoke, and are arranging for development work.

In Saskatchewan, considerable drilling is under way. Near Hanley, Gas Production & Transportation, Ltd., of Calgary has a diamond drill test down 1,900 feet. This test is being drilled for gas to supply Saskatoon. In the Unity Valley district, Citizens Oil & Gas Co.'s No. 1 is building derrick, 1,000 feet southeast of Unity Valley's No. 2, in LSD 14, Section 23-41-24w3.

Riverhurst Oil & Gas Co. of Regina has a test down 527 feet in LSD 4, Section 33-22-7w3, in the Riverhurst district, with a gas flow of 500,000 feet a day. In the Rosetown-Herschel area, Rostown's No. 2 is being rigged up in Section 4-31-17w3. Empire Utilities, Ltd., of Saskatoon is arranging to drill this summer in Section 36-43-18w3, on a structure west of Battleford, where it has 3,300 acres leased.

In Manitoba the Carter Oil Syndicate has taken over 1,300 acres south of Ochre River in the Dauphin district. Officers are A. C. McIntosh, Winnipeg; H. H. Webber and T. E. Browne, Toronto.

Ontario

In Ontario, Ajax Oil & Gas Co.'s No. 4 in Dover Township, Kent County, has opened a promising new gas production in the Trenton limestone. The location is in new territory, some 3,000 feet due east of No. 3 well, which was only a small gasser, probably less than 100,000 feet a day. Ajax's No. 4 got gas at several horizons in the top of the Trenton, with the big production between 2,900

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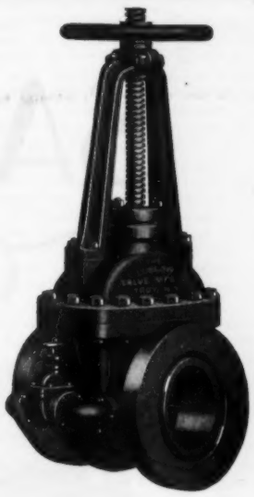

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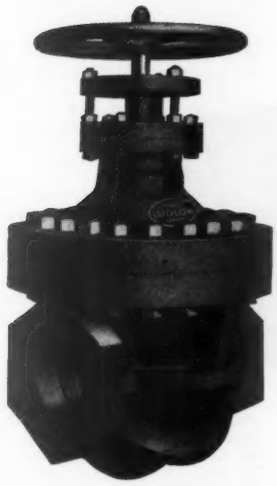

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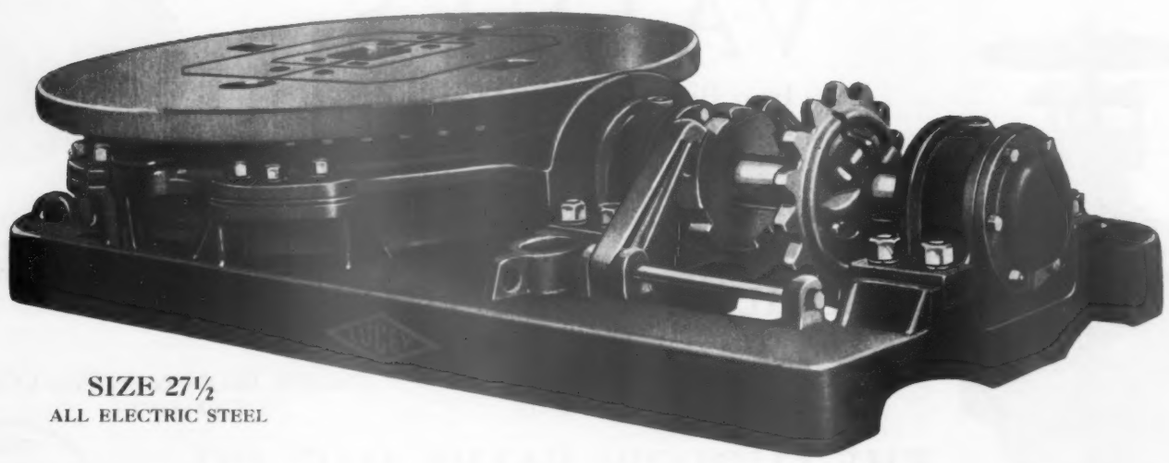

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and 3,000 feet. It came in with an estimated flow of 750,000 feet a day, but a shot of 500 quarts and 200 pounds brought the production to around 5,000,000 feet a day. Ajax's No. 4 is one of the biggest gassers drilled in Ontario in many years, and indicates possibilities in the Trenton limestone a considerable distance east of the original field. Ajax Oil & Gas Co.'s No. 5 has been located 1,300 feet east of No. 4, and four wells are to be put down later. An 8-inch line will be laid connecting No. 4 with the Union Natural Gas Co.'s main line. It is understood the Union company has contracted for the entire Ajax production.

In the Dawn Field, Lambton County, Union Natural Gas Co.'s No. 32, Powell farm, Lot 25, Concession 1, Euphemia Township, finished a dry hole at 1,700 feet.

In northern Ontario the James Bay Basin Oil Co. has been organized to develop a group of oil properties on the Moose River, some distance north of the Ontario government's drilling operations on the Abitibi. Oil seepages have been found on the Moose River acreage, and drilling operations are planned to start this summer.

LOUISIANA-ARKANSAS

(Continued from Page 54)

feet west and 175 feet north SE cor. SW SW, Section 23-22-15.

Oil City—Gulf Refining Co.'s No. 16-A Levee Board, Section 34-21-16, is waiting on standard rig with 800 feet of oil in the hole, total depth 1,824 feet. Magnolia Petroleum Co. is drilling lime at 3,205 feet on No. 18 Doan-Thigpen, Section 6-20-15. C. B. Moore's No. 5 Dillon, Section 22-20-15, is plugging back to 2,188 feet after testing salt water at 2,202 feet.

Pine Island—Dixie Oil Co.'s No. 92 Dillon, Section 13-21-15, cored lime and shell at 6,156 feet; No. 98, in the same section, is waiting on standard rig to pump from 1,744 feet; No. 99 set 42 feet of 10-inch and is drilling at 512 feet; No. 2-B Slattery, Section 21-21-15, is cleaning out at 1,440 feet, total depth 1,607 feet. Magnolia Petroleum Co.'s No. 18 Dillon, Section 24-21-15, tested 1,500 feet of salt water at 3,438 feet and cored sand and shale at 4,361 feet.

LaSalle Parish

Urania—Arkansas Natural Gas Corp. set 110 feet of 10-inch on No. 13-M Urania, Section 19-10-2e, and is drilling at 1,000 feet. O. W. Clark set 100 feet of 10-inch on No. 1 Tullos, Section 23-10-1e. Gardner, Harter & Brown's No. 1 Harper, in the NE SW, Section 26-10-1e, set 101 feet of 10-inch and 1,500 feet of 6-inch to test broken sand from 1,500-08 feet. Louisiana Oil Refining Corp. made location for No. 39-B Tremont 1,940 feet south and 900 feet west NE cor., Section 25-10-1e.

Monroe District

Morehouse Parish—J. S. Herkness' No. 6 Bowles, Section 17-20-5, is in shale at 2,220 feet. S. D. Hunter made location 660 feet south and east NW cor., Section 18-20-5, for No. 9 Allison and for No. 10 Allison 1,962 feet east and 660 feet south NW cor., same section. Interstate Natural Gas Co.'s No. 2 Fleming, Section 15-20-4, is drilling at 1,760 feet. Natural Gas Producing Co. is arranging to deepen No. 1 Sandidge, Section 10-20-4, completed May 30, 1922, as a 26,000,000-foot gas well by H. C. Morris at 2,176 feet. Southern Carbon Co. is drilling shale at 3,038 feet on No. 10 Tensas, Section 2-20-4; No. 11, Section 31-21-4, set 12-inch at 150 feet and 8-inch at 890 feet.

Ouachita Parish—Austin & McDonald made location 2,657 feet south and 1,557 feet west NE cor., Section 11-18-3, for No. 1 H. M. McGuire. G. E. Jordan's No. 1 Anding, Section 18-18-5, plugged back from 2,480 feet to 2,234 feet. Louisiana Delaware Producing Co.'s No. 48 fee, Section 31-20-5, is drilling at 1,345 feet. Mack & Pipes made location for No. 1 Burke, 610 feet south and 1,428 feet east NW cor., Section 7-18-5; No. 1 Cagle, Section 7-18-5, set 10-inch at 202 feet and is drilling shale at 1,836 feet. Magnolia Petroleum Co.'s No. 1 fee, Section 2-18-3, set 15½-inch at 198 feet and 10¾-inch at 840 feet; No. 2 U. S., Section 30-19-5, tested 736,000 feet of gas at 275 pounds at 2,225 feet and is drilling lime at 2,293 feet; No. 4 U. S., Section 20-19-5, has rig up. Ouachita Natural Gas Co. set 12-inch at 150 feet. Location is north 63 degrees, east 4,742 feet and north 27 degrees west 175 feet from the NW cor., Section 40-20-4; No. 10 Smith, same section, set 12-inch at 202 feet and 8-inch at 780 feet. United Oil & Natural Gas Co.'s No. 4 Guthrie, Section 49-20-4, set 6-inch at 2,097 feet; No. 5, in the same section, has derrick up.

Union Parish—Bahan & Bahan set 12-inch at 177 feet on No. 1 Barr, Section 10-20-3. Harrell & Jones made location for No. 1 Stripling, 200 feet south and 400 feet east NW cor. NE NE, Section 17-20-4. Imperial Oil & Gas Products Co.'s No. 1-A fee, Section 30-20-4, set 202 feet of 12-inch. Interstate Natural Gas Co.'s No. 1 Parks, Section 23-20-3, set 12-inch and is drilling at 360 feet. Palmer Corp.'s No. 1 Downey, Section 12-20-3, is reaming to set 6-inch, total depth 2,103 feet; No. 2 Downey, Section 21-21-3, set 12½-inch at 143 feet and 9-inch at 809 feet.

Red River Parish

Bull Bayou—Gulf Refining Co. set 6⅝-inch at 2,470 feet on No. 24 Kennedy, Section 24-13-11.

Richland Parish

W. C. Feazel has rig up for No. 1 McCoy, Section 33-16-6. O. E. Hodge is drilling shale and boulders at 1,945 feet on No. 1 W. T. Sartor, Section 16-16-6. Hope Producing Co. set 12-inch at 189 feet and is drilling at 300 feet on No. 1 Standard Oil Co. of Louisiana, Section 28-17-6, formerly reported at Hope Producing Co.'s No. 1 Binion & Sartor; No. 1 Eubanks, Section 26-17-6, set 12½-inch at 191 feet and is drilling around 675 feet. Magnolia Petroleum Co. tested 1,978,000 feet of gas at 2,415 feet on No. 2 C. M. Noble, Section 36-16-5, but will make a few feet more hole; No. 4 C. M. Noble is a location 400 feet south and 660 feet west NE cor. SE NE, Section 35-16-6. Northern Louisiana Natural Gas Co. is fishing for drill stem on No. 1 Boykin, Section 20-17-6, total depth 2,210 feet. Palmer Corp. set 12½-inch at 156 feet on No. 1 Hardwick, Section 16-17-6, and is drilling at 465 feet; No. 1 Jones, Section 22-17-6, set 12½-inch at 156 feet and 9-inch at 919 feet; No. 1 Miles, Section 11-17-6, was bailing to test, total depth 2,428 feet; No. 1 Rhymes, Section 21-17-6, set 12½-inch at 164 feet and 9 inch at 925 feet; No. 1 Whiteen, Section 21-17-6, set 12½-inch at 156 feet and 9 inch at 879 feet. Southern Carbon Co.'s No. 1 Tegola, Section 4-15-6, tested salt water and is shut down for orders at 2,458 feet; No. 1-B Tegola, Section 5-15-6, is drilling gumbo at 1,703 feet.

Webster Parish

Cotton Valley—Magnolia Petroleum Co.'s No. 1 McCook & Hibbler, Section 22-21-10, cored lime with streaks of shale at 5,995 feet; No. 5-A Robbins, Section 21-21-10, set 411 feet of 15½-inch and is drilling at 1,700 feet. Ohio Oil Co.'s No. 43 Bodcaw, Section 24-21-10, is drilling lime and shale at 3,595; No. 44 Bodcaw, Section 28-21-10, has rig up. Palmer Corp.'s No. 5 Tillman, Section 27-21-10, set 8⅝-inch casing at 3,498 feet. Standard Oil Co. has rig up for No. 22-B Bodcaw, 690 feet south and 630 feet east of the center of Section 28-21-10.

Sarepta and Shongaloo—W. M. Kemp and others made location 250 feet south and west NE cor. NW NE, Section 11-22-10, for No. 1 R. D. Campbell. Magnolia Petroleum Co. has rig up for No. 1 Sally Coyle in Section 2-22-11.

Ouachita County

Mount Holly—McDonald Brothers' No. 2-A Wilson, Section 25-15-18, set 12½-inch at 160 feet and is drilling at 1,855 feet; No. 3-B Wilson, same section, set 67 feet of 10-inch and is drilling.

Smackover—L. H. Hamilton has rig up for No. 1 Arnold & Doyle, 800 feet east and 200 feet north SW cor. SE SE, Section 23-15-16. Phillips Petroleum Co.'s No. 1 Scott, Section 34-15-15, is waiting on standard rig with 250 feet of oil in the hole from 35 feet of broken sand, total depth 1,990 feet.

Union County

Champagnolle—Bailey and Trimble junked No. 1 El Dorado Realty Co., Section 7-17-13, at 768 feet, and skidded derrick to start second hole. Gann and others' No. 1 Doss, Section 10-17-14, tested 1 fourble of oil through drill stem and is waiting orders, total depth 2,800 feet. Lion Oil Refining Co.'s No. 1 El Dorado Realty Co., Section 7-17-13, set 6⅝-inch at 3,013 feet, total depth 3,027 feet. Magnolia Production Co. recemented bottom on No. 2 El Dorado Realty Co., Section 7-17-13, total depth 3,084 feet. Ohio Oil Co.'s No. 1 M. H. Nash, Section 7-17-13, tested 8,000,000 feet of gas through drill stem from 3,077-86 feet and set 6⅝-inch at 3,079 feet. Pure Oil Co.'s No. 2 Nash, Section 7-17-13, tested 11 fourbles of oil through drill stem from 3,035-40 feet and set 6⅝-inch at 3,035 feet. Rushing and others are fishing for stuck drill stem on No. 1 Lynn, Section 7-17-13, total depth 2,991 feet.

El Dorado—J. F. Hawkins is drilling at 1,985 feet on No. 1 Goodwin, Section 8-17-15.

Champagnolle—E. L. Chapman has derrick up for No. 1 Purifoy, 585 feet west and 150 feet south NE cor. NW SW, Section 2-16-16. Simmons and others' No. 1 Green, Section 3-16-16, is coring at 2,600 feet.

EAST TEXAS

Harrison County

Nick Barbare is drilling chalk at 1,440 feet on No. 2 Fuller-Furrh, James Short Survey. Eureka Natural Gas Co.'s No. 4 Vaughn, W. R. Anderson Survey, is drilling at 1,600 feet. C. H. Lyons and others' No. 1 Rudd, W. R. Anderson Survey, is fishing for 3-inch liner, total depth 2,351 feet, and are rigging up for No. 1 Sayre in the E. M. Jenkins Survey. Mason and others' No. 1 Dean, J. W. Crofts Survey, is shut down at 2,165 feet waiting orders.

Panola County

Adams & Waller's No. 1 Adams, James Mathews Survey, set 6⅝-inch at 2,650 feet, and is drilling at 2,716 feet. Natural Gas Producing Co. set 40 feet of 10-inch and is drilling at 750 feet on No. 7 Floyd in the B. C. Jordan Survey. The Texas Company's No. 12-A Adams is a location in the S. B. Lacy Survey. D. Thomason set 10-inch at 43 feet and is drilling at 375 feet on No. 1-B Mays. Paul C. Warren's No. 1 McNeese, A. Booker Survey, is a derrick.

LA.-ARK. WILDCATS

(Continued from Page 54)

15 operations under way ranging from locations to wells waiting for standard rig to pump, is the most interesting section of this division at present, with Champagnolle and Mount Holly almost but not quite inactive even though the Monroe and Richland Parish districts are reporting a fresh crop of new locations and rigs every week. Three of the Dixie wells may be classed as wildcats and the majority of the remaining 12 as semi-wildcats and even with the 18,334 bbls. total production from four wells since the discovery several weeks ago, the area is still regarded more or less as wildcat because of the four failures, two of them offsets to producers and two semiwildcats.

Magnolia Petroleum Co.'s No. 18 Doan-Thigpen in Section 6-20-15, its second well in a vacant patch surrounded by production and which had been condemned as barren, has passed the level where the first one, No. 3 Levee Board, got a 100-bbl. producer with 250 bbls. of salt water last November, having had only a salt water test where production might be expected. The first well was completed at 3,012 feet total depth, with 8 feet of sand; the Doan-Thigpen got the water at 3,009 feet and is drilling lime at 3,205 feet.

Tunica Petroleum Co. made location during the week for another wildcat in the White Sulphur district of LaSalle Parish where it has already drilled eight wells, two of which pumped an initial 27 bbls. between them from 816 feet. All but two of the eight were completed around this depth, the others being abandoned at around 1,050 feet. The new location is for No. 47 L. & A. in the SE cor. Section 17-7-2e, in which both the two pumpers were located. Eylers Oil Co. is swabbing salt water with a little oil from 5 feet of sand in No. 1 Chaffraix, Section 30-12-10, Red River Parish, a couple of miles south of Bull Bayou production. A. H. Tarver's No. 1 Long-Bell, Section 29-8-13, Sabine Parish, southeast of R. L. Gay's producers in the Zwolle district, had a show of about 100,000 feet of gas with no oil or water from 20 feet of broken sand at 3,429 feet and is drilling sandy lime at 3,434 feet.

F. A. Fuller is reported building a block of 3,500 acres in the southeastern part of Township 18, Range 8, Bienville Parish, for a well. Palmer Corp. is reported renewing an old block it had some time ago which centered on Section 8-21-11, 6 or 8 miles west of Cotton Valley, taking five-year commercial leases with no drilling clauses attached. G. E. Nesbit and Gordon Collins have a block of 3,500 acres centering at the corner of Sections 19-20-30 and 29-20-5, Claiborne Parish, in which they are offering protection to finance a 2,800-foot test. Palmer Corp's No. 1 Miles in Section 11-17-6, Richland Parish, 4 miles east and north of the nearest producers in the northern part of the field, was dry at 2,410 feet and Austin & McDonald's No. 2 Millsaps, Section 17-17-6, is waiting orders at 2,697 feet after a salt water test.

ARKANSAS

In Columbia County, Arkansas, Arpeco Syndicate, drilling No. 1 Dennis in Section 11-20-23, approximately 2 miles north of Haynesville production, cored from 1,949-55 feet and recovered a small core of sandy chalk that had a trace of oil; from 1,955-57 feet, chalk with a thin streak of sand holding a trace of oil and from 1,957 to 1,970 feet, chalk but no more sand, and is now drilling at 2,000 feet.

Morris and others of Fordyce have reassembled a block of 3,000 acres around Dedman and others' No. 1 Hillman, Section 20-10-13, abandoned as a dry hole at 1,407 feet last September and will deepen the wildcat to 3,500 feet. Mathews and others of El Dorado are building a block in Township 12, Ranges 16 and 17 about 8 miles north of Camden but how large is not advised.

In north Arkansas, Independent Oil & Gas Co. got a water sand in No. 1 Banks & Teague, Section 6-16-27, Madison County, and set 6⅝-inch casing at 2,425 feet. C. H. Willoughby set 6-inch at 1,320 feet on No. 1 Jones, Section 34-16-30, Washington County, and shut down. Gatewood and others of Nowata, Okla., have a block of 6,000 acres northeast of Siloam Springs, Benton County, and have steel derrick rigged up to drill but description of block and location of the well has not been learned.

C. O. Moore, previously reported surveying a line from the Alma gas district of Crawford County to Fayetteville and other towns on the Frisco north of Fort Smith, is now reported having made a deal with the Arkansas Natural Gas Corp. for gas from its Clarksville Field in Johnson County and to be surveyed for a 10-inch line from that source instead. He is reported laying his distributing systems in Fayetteville, Springdale, Rogers and Bentonville meanwhile.

The old Dolet Hills district of DeSoto Parish produced a well that aroused almost as much interest as R. L. Gay's wildcat producers in the Zwolle district of Sabine Parish. Magnolia Petroleum Co. completed No. 1 Clements, Section 28-12-11, making 90 bbls. of 40 gravity oil from 8 feet of sand at 2,612 feet but after a day or so it went dead. After 2½-inch tubing and packer was set it started off flowing 150 bbls. but a week or so later is back to about 100 bbls.

In Arkansas, Phillips Petroleum Co. abandoned No. 1 Kline, Section 28-16-12, Bradley County, without testing at 2,902 feet in the red beds. Arkansas Drilling Co. abandoned No. 1 Bearden, Section 27-15-18, Ouachita County, 2 miles west

of Mount Holly production, in the red beds at 3,220 feet after testing salt water in 6 feet of sand at 2,990 feet; No. 1 J. S. Bearden in the same section was erroneously reported as a derrick and has been dropped from the report. Lion Oil Refining Co. abandoned No. 1 Stowe, Section 4-17-13, Champagnolle district of Union County, as a salt water test at 3,313 feet.

NORTH LOUISIANA

Bienville Parish

W. G. Gray is coring and reaming sandy shale at 2,150 feet on No. 1 Snyder, Section 15-16-6.

Bossier Parish

Delaware-Louisiana Development Co. is drilling red gumbo at 3,808 feet on No. 4 Bollinger, Section 38-23-11. Triangle Drilling Co. cemented 6-inch at 1,700 feet on No. 1 Fullilove, Section 11-17-12. Walker and others are still bailing about a barrel per day of 42 gravity oil from No. 1 Antrim, Section 28-22-13, total depth 3,117 feet.

Caddo Parish

D. C. R. Oil Co. made location 264 feet south and west NE cor. NW, Section 20-19-14, for No. 1 Oden. Lide and others have derrick pattern on location for No. 1 Oden, 300 feet north and west SE cor., Section 21-19-14. Humble Oil & Refining Co. and R. W. Norton's No. 1 Fortner, Section 32-21-16, is drilling at 4,320 feet. Simplex Oil Co. set 102 feet of 10-inch surface pipe on No. 1 S. A. Dickson, Section 33-20-14.

Claiborne Parish

El Dorado Chief Oil Co. has derrick up for No. 1 J. M. Dance in the C SW NE, Section 27-20-7.

DeSoto Parish

Benedum & Trees Oil Co. set 10-inch on a shoe in gravel at 2,587 feet in No. 2 State, Section 22-14-12, and is drilling at 2,600 feet. D. Thomason has rig up to drill No. 1 Nabors, Section 6-12-11.

Franklin Parish

Ruston Drilling Co. is in black shale at 3,312 feet on No. 1 West Virginia Timber Co., Section 23-15-7.

Jackson Parish

George O. Baird's No. 1 Tremont, Section 24-16-1w, is drilling black shale at 2,461 feet.

LaSalle Parish

Tunica Petroleum Co. has derrick up for No. 47 L.&A., 100 feet north and 300 feet west SE cor., Section 17-7-2e.

Ouachita Parish

Farish & Russell are drilling No. 1 School fee, Section 16-16-4, at 3,750 feet.

Red River Parish

Eylers Oil Co.'s No. 1 Chaffraix, Section 30-12-10, is swabbing salt water with a show of oil from 1,695 feet, total depth.

Richland Parish

Austin & McDonald's No. 1 Millsaps, Section 17-17-6, is drilling gummy shale at 2,190 feet; No. 2 in the same section is waiting orders after a salt water test through drill stem at 2,697 feet. Palmer Corp. is bailing to test No. 1 Miles, Section 11-17-6, total depth 2,428 feet.

Sabine Parish

R. L. Gay has derrick up for No. 4 Bowman-Hicks, Section 14-7-14, and is drilling at 1,625 feet on No. 1 Long-Bell, Section 26-8-14; No. 2 Sabine Lumber Co., Section 23-7-14, set 120 feet of 12½-inch surface pipe. A. H. Tarver tested 100,000 feet of gas from 20 feet of broken sand at 3,429 feet and is drilling sandy lime at 3,431 feet.

Union Parish

The Texas Company is drilling lime at 2,407 feet on No. 1 Fuller, Section 9-21-2w.

ARKANSAS

Ashley County

Atlantic Oil Producing Co. and others' No. 1 Young, Section 20-15-7, is shut down for boiler water, total depth 3,056 feet.

Columbia County

Arpeco Syndicate is drilling shale at 1,600 feet on No. 1 Dennis, Section 11-20-23. T. J. Bush is drilling No. 1 Jones, Section 5-17-18, at 2,005 feet.

Logan County

Arkansas Natural Gas Corp.'s No. 1 Hanna, Section 26-7-23, cemented cavity at 2,085 feet.

Madison County

Independent Oil & Gas Co.'s No. 1 Banks, Section 6-16-27, cemented 6⅝-inch casing at 2,168 feet.

Ouachita County

L. H. Hamilton has derrick up for No. 1 Arnold & Doyle in Section 23-15-16. Phillips Petroleum Co. has derrick pattern on location for No. 1 Eagle Mills, Section 11-12-16. Sundby and others have derrick pattern on location for No. 1 Farris in the SW cor. NW SE, Section 27-15-15. Timberlake and others' No. 1 Wright, Section 25-14-18, is shut down at 2,855 feet for repairs to rig.

Union County

Sam Arrendale has derrick up for No. 1 Gallagher & Nelson, 200 feet north and west SE cor., Lot 5, Section 18-18-17. W. M. Coats tested dry from 3,288-96 feet on No. 1 McDuffy, Section 32-19-17, and is coring at 3,360 feet. Johnson Gummer's No. 1 Cargile, Section 4-18-13, set 154 feet of 12½-inch pipe and is drilling at 250 feet. Stark and others have derrick up for No. 1 Ainsworth, 110 feet south and west NE cor. NW NE, Section 8-19-16.

Washington County

C. H. Willoughby set 6-inch casing at 1,320 feet on No. 1 Jones, Section 34-16-30, and shut down at 1,342 feet on account of an accident.

White County

Letona Syndicate set 6-inch at 2,975 feet on No. 1 Letona Townsite, Section 35-9-8.

EAST TEXAS

Shelby County—Gulf Refining Co. is drilling blue shale and lime at 5,019 feet.

SOUTHWEST WILDCATS

(Continued from Page 59)

southwest direction such as they nearly all take due to the Balcones fault and a location on the southeast side of the fault should get oil where one on the northwest side got water.

This Fayette area and the Guadalupe County district spoken of last week are the most active plays outside of the Coast territory. Due to oil in the Refugio Field which is every day gaining in importance there is to be no let-up in wildcatting in the Coast territory for oil. The Magnolia has started operations to drill for gas. It was reported last week the company had made locations 2 miles north of the gas production north of the Cole oil pool in Webb County in the gas area discovered by J. J. O'Hern. The past week the company made a location in the Mathis district in San Patricio County where the Plateau Oil Co. and the Texas Pacific Coal & Oil Co. a few years ago drilled a few wells and discovered gas but was unable to complete any. Ed Leach has since drilled two or three gas wells and the gas for a time was taken by the Southern Gas Co. of San Antonio. Magnolia Gas Co.'s gas line now under construction will pass within a short distance of this field which is believed to be capable of development into an important gas field.

Duval County

Magnolia Petroleum Co.'s No. 1 Corbett, Survey 96, 1,074 feet northwest lines, 1,042 feet northeast lines, is location.

Jim Hogg County

M. E. France's No. 1 Kelsey is location.

Starr County

Ohio Oil Co.'s No. 1 Bass, Porcion 76, Block 71, is drilling. U. S. Oil & Gas Co.'s No. 1 Kelsey, Porcion 76, Block 11, located 1,500 feet north line, 500 feet west line, is standing at 80 feet, previous reports in error. The Texas Company's No. 1 V. C. de Guerra, Porcion 68, Share 92, located 600 feet east line, 6,280 feet south line, at 3,230 feet is drilling.

Atascosa County

Amphion Oil Co.'s No. 1 Sam Schlisser, Farm B, Arnold farms, 300 feet northeast lines, 600 feet southeast lines, topped Taylor marl at 2,085 feet, drilling at 2,100 feet.

Webb County

G. S. Lumpkin's No. 1 H. Yeager, Porcion 33-34-35, located 1,170 feet east line, 150 feet south line, is location. L. W. Nelson's No. 1 Moglia, Survey 672, located 150 feet east line, 2,584 feet south line, has resumed drilling at 2,725 feet. Usher Carson's No. 2 D. Benavides, Survey 1,613, Block 11, located 150 feet north and west lines, is standing at 1,005 feet.

Zapata County

National Oil Co.'s No. 1 Don B. Adams, Share S, Borrego grant, is standing at 690 feet. John Pappas' No. 1 Cuellar, Porcion 33-34, Block 5, 333 feet northeast lines, 194 feet southeast lines, at 1,408 feet tested gas. Buck & Coursey's No. 1 Garza, Block 47, location 150 feet northwest and northeast lines, is rigging up.

Bastrop County

Gypsy Producing Co.'s Not 1 Lottman estate, center of town tract No. 143, is drilling at 2,567 feet. Gulf Production Co.'s No. 2 W. N. Bell, Riley Survey, west central part of lease, is location. Harper & Mitchell's No. 1 Riley Mitchel, same as Jim Harper and others' No. 1 R. R. Mitchell. Jim Harper and others' No. 1 R. R. Mitchell. Bastrop Town Tract Subdivision, 150 feet north of center of south line, Block 105, is location. Howell Oil Corp.'s No. 1 F. Wichman, S. H. Castleberry Survey, 150 feet east and south lines, at 475 feet drilling. Humble Oil & Refining Co.'s No. 1 B. Haywood, C. S. Smith Survey, 200 feet north line, 150 feet west line, is location. E. W. Ogden's No. 2 M. M. McCall, Stephen F. Austin Survey, 50 yards west of No. 1, at 2,760 feet is drilling.

Bexar County

Balcones Oil Corp.'s No. 1 F. A. Jackle, Alexander Bailey No. 184 Survey, 300 feet north and west lines, is at 1,225 feet coring in lenticular sands, showing oil and gas. Humble Oil & Refining Co.'s No. 2 Oppenheimer, J. M. Urrigas Survey, 300 feet north of No. 1, is at 4,485 feet, fishing. Indian Creek Oil & Gas Co.'s No. 1 W. Wolfsohl, J. A. Navarro No. 5 Survey, 180 feet west of center, run casing and set packer at 1,597, bailing through and ready to test. Moore-Jauer's No. 1 Holly R. Ellison, T. York Survey, 2,916 feet east line, 1,500 feet south line, is standing at 1,198 feet. J. Morgan Russell's No. 1 G. A. C. Halff, Lot 5, Block 8, G. A. C. Halff Subdivision, has completed "digging" three 16-foot tests and will rig up pumps. B. L. Raborn's No. 1 Engleman, John James No. 73 Survey, 300 feet south line of survey, 600 feet east line of farm, at 1,715 feet is standing.

Blanco County

C. W. Bates' No. 1 Herman Massey, Henry Manton Survey, 920 feet north line, 660 feet east line, at 214 feet is shut down. Sam Hohenstein & P. H. Burtner's No. 1 Tom Beauchamp, 1 mile north of Rodson's No. 1 Glasscock, is location. Albert Moursund's Joseph Duel Survey, 1 mile south of Johnson City, ready to spud in. Robert A. Rodson's No. 1 Glasscock, W. W. McDonald Survey No. 50, 150 feet west of center of east line, is at 962 feet waiting on string of new casing. Forbes & Winans is making location.

Brooks County

A. W. Dinn's No. 1 J. G. Ramans, La Mestana No. 1, Block 5, is location; No. 1 Salado, Block 5, La Mestena, is location. Houston Oil Co.'s No. 1 Lassiter, Survey 69, Block 11, located 330 feet south and east lines, is rigging up. Milam Drilling Co.'s No. 2 Riley Allen, Block 89, completed as core test at 1,250 feet.

Calhoun County

B. F. Thompson's No. 1 Thomas, John P. Tully Survey, 910 varas north, 5 minutes 30 seconds west of north corner, at 2,748 feet resumed drilling.

DeWitt County

Gibson & McIntire's No. 1 William Von Roeder, W. G. Hill League Survey, northwest corner of tract, is location.

Caldwell County

H. C. Ratcliffe's No. 1 J. E. Cardwell, John P. Bell Survey, 150 feet out of northwest corner, is location. John T. Callahan and others' No. 1 W. Ellison, House Survey, 750 feet east line, 150 feet south line, moving in rig. Magnolia Petroleum Co.'s No. 2 H. M. Lochman, Guadalupe College Survey, 150 feet south and west lines, at 2,184 feet is drilling. Russell's No. 1 Hill, McCullough Survey, at 547 feet is standing. Whittington and others' No. 1 J. G. Horner, Francis Berry Survey, is standing at 1,320 feet feet partially rigged up.

Edwards County

A. M. Griffith's No. 1 Wardlaw, S. 60. B. V8, J. S. Clift Survey, 1,050 feet west line, 150 feet south line, at 2,000 feet is drilling.

Fayette County

Marshall & Moore's No. 1 John A. Kerr, M. Muldoon Survey, about 250 varas north line of league and a little west of center, is at 2,364 feet, last report 60 days ago.

Goliad County

Humble Oil & Refining Co.'s No. 1 A. E. Taylor, 1 mile northwest of No. 1 Reitz, at 350 feet is drilling core test.

Gonzales County

Alexander & Smith's No. 1 Billings, G. Gwinn Survey, is shut down around 600 feet. Joe Bruner's No. 1 R. D. & J. C. Miller, David Kent Survey, 3,040 feet north line, 200 feet east line, at 2,712 feet is moving in another boiler. Crown Petroleum Co.'s No. 1 Mrs. Hattenbach, James Jones Survey, 900 feet east line, 200 feet south line, at 1,950 feet is drilling. Finnell & Elam's No. 1 J. F. Robinson, J. Liverpool Survey, 5,558 feet west line, 2,640 feet south line, at 600 feet is drilling. Hoffman and others' No. 1 Mrs. N. J. Steubing, John T. Smith Survey, is making location. Linderman Brothers' No. 1 F. H. Frampton, Richard Heath Survey, 2,120 feet north line of creek, 1,930 feet east line of farm, at 1,000 feet expect to resume drilling June 15. Fort Bend Oil Co.'s No. 1 C. E. Ham, John Adkinson Survey, 3½ miles from Wealder, at 1,450 feet cored shale formation showing some oil. Frank Sorrell's No. 2 Wilkenson, located 100 feet west of No. 1, at 174 feet is standing.

Guadalupe County

W. E. Clark and others' No. 1, location made and contract let. A. G. Kiffer's No. 1 B. B. Dix, Ira Nash Survey, 610 feet north of road and 320 feet east line, at 1,050 feet is standing. Grayburg Oil Co.'s No. 2 Sophie Haensel is location. Humble Oil & Refining Co.'s No. 1 W. H. Griffin, G. Allen Survey, 450 feet south line, 650 feet west lines, is abandoned dry. Magnolia Petroleum Co.'s No. 1 Ed Adams, S. Highsmith Survey, 150 feet from center of southwest line, at 2,507 feet is drilling. Mid-Kansas Oil & Gas Co.'s No. 1 Ramon Gonzales Survey, southeast of No. 1 C. Lehman, is probable location. Miller Brothers' No. 1 Gib Springs, E. Cortari Survey, 450 feet west lines, 775 feet south lines, at 2,624 feet, tester and joint above came up covered with oil and adobe. T. H. Poole's No. 1 C. Woehler, John King Survey, 310 feet north line, 210 feet east line, at 2,354 feet is drilling. L. W. Stieren's No. 1 S. H. Herman, J. W. Ragsdale, 600 feet south of center of north line, is spudded in. Tidal Oil Co.'s No. 1 Williamson Survey, is location. L. W. Conner and others' No. 1 William Weinaug, Robert Hall Survey, 150 feet out of southwest corner, to spud in soon.

Jackson County

The Texas Company's No. 1 Lawrence at 3,000 feet is still trying to get to bottom of the hole.

Karnes County

Hurador Oil Co.'s No. 1 W. E. Porter, 800 feet north line, 250 feet east line, at 1,543 feet is drilling. Scott Townsend and others' No. 1 Ruckman, 2,000 feet southeast line, 1,800 feet northeast line, at 1,250 feet took core in Fayette that tested gas under ether.

Kendall County

C. W. Gould and others' No. 1 A. J. McCrocklin, 10 miles northeast of Sisterdale, is spudded in.

Kerr County

McMan Oil & Gas Co.'s No. 2 Walter Schrenier is location. L. R. Page and associates' No. 1 Real, Block 15, K.C.S.L. League No. 2 is drilling 1,040 feet, driller estimates log is running 211 feet high.

Kimble County

Carl L. Bryant's No. 1 C. E. Lambert will spud in as soon as weather permits. H. A. McLean & Jamison's No. 1 R. F. Cannon, Section 741, R. Cochran Survey, 300 feet east line, 2,640 feet south

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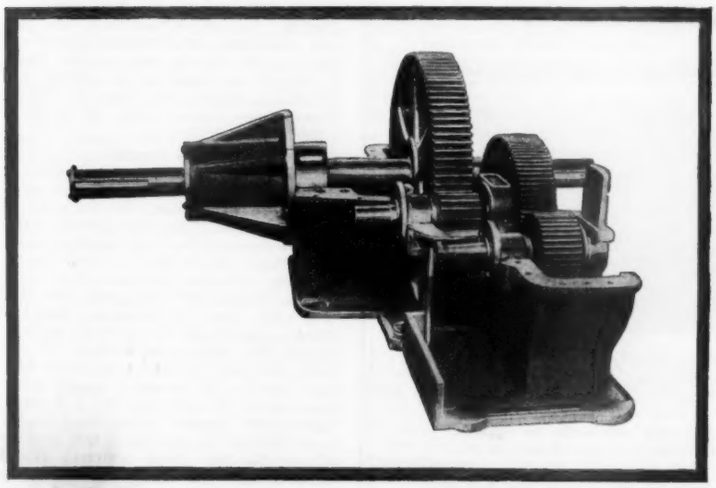

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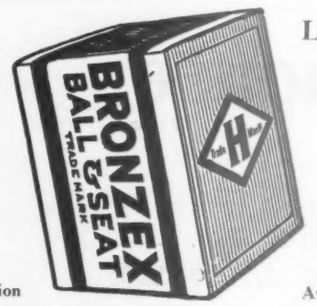

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lines, at 600 feet had oil showings. J. B. Lindsay's No. 1 G. C. Anderson, Section 167, B. Huiger Survey, 1,320 feet north and east lines, at 100 feet is setting surface casing.

Kinney County

Lloyd Oil Co.'s No. 1 G. B. Moore, S. S. Maverick Survey, No. 117, located 1,320 feet south of center of north line, at 1,000 feet shut down in Del Rio, hole full water from 300 feet. Mardon Oil Co.'s No. 1 Jim Clamp, John Winters No. 346 Survey, 5,360 feet west line, 5,675 feet south line, is at 2,540 feet.

LaSalle County

J. G. Nix's No. 1 Coleman, Survey 68, Block 4, 150 feet north line, 500 feet west lines, is rigging up.

Maverick County

Ryan Consolidated Petroleum Co.'s No. 2 Indio Ranch, A. Rivas Survey, is at 1,320 feet total depth. Rycade Oil Corp.'s No. 3 Chittim, Section 116, Block 7, I.&G.N., located 10 feet west line, 255 feet south line, is at 3,627 feet drilling; No. 4 J. M. Chittim, Section 104, Block 7, I.&G.N., at 3,050 feet is drilling; No. 4 Sullivan, Section 112, Block 7, I.&G.N. Survey, east central part of lease, at 1,300 feet is drilling.

Medina County

California-Medina's No. 1 Rothe at 3,426 feet resumed drilling after being shut down. Donaldson Oil Co.'s No. 2 Adams, Joseph Hillemeyer Survey, 1,000 feet northeast of No. 1, is location. Lynch and others' No. 1 Mott at 580 feet is standing. Pearson Oil Co.'s No. 1 Suburban Farms, 300 feet north line, 150 feet east lines, is location. Rawdon-Hughes and others' No. 1 T. J. Bendele, Survey 593, 600 feet west line, 150 feet south line, at 815 feet has resumed drilling; No. 1 A. L. Haegelin, Joseph Barnhart Survey, is drilling; No. 2 Bendele, Survey 593, located 75 feet north of No. 1, at 937 feet is standing; had show of oil at 915 feet. Cecil Switzer's No. 1 Zerr at 3,700 feet is fishing for broken cable. W. W. Woodworth's No. 1 Reinhart, J. Hall Survey, 450 feet south and east lines, at 1,964 feet is shut down, 50 feet in Edwards, dry, neither oil nor water. Zigzag Oil Co.'s No. 1 San Antonio Subdivision Irrigation Farms, Inc., at 1,850 feet topped Anacacho with showing of oil.

Milam County

J. M. Burkhead's No. 1 C. Weighman, A. Pollard Survey, 1,075 feet north line, 450 feet west line, at 1,400 feet is drilling in chalk. E. L. Chapman's No. 1 J. M. Gilchrist, J. J. Acosta Survey, 150 feet north and west lines, at 2,220 feet in Edwards lime with hole full of sulphur water, will drill to Trinity; No. 1 E. G. Knight, one-fourth mile southeast of discovery well, moving in rig. H. E. Elliott & J. L. Minahan's No. 1 J. C. Moore, D. Robertson Survey, 1,000 feet of discovery well, at 1,500 feet is drilling in chalk. Groneman Brothers' No. 1 Dornhofer is at 2,580 feet drilling. Rogers & Heep's No. 1 J. B. Duncan, J. J. Acosta Survey, 1,800 feet north line, 750 feet west line, at 2,070 feet, topped Edwards at 2,050 feet, cored to 2,070 feet, showing some oil; shut down for examination of core.

McMullen County

Natt Holman's No. 1 Shiner, Henry M. Brewer Survey, 7,515 south of Nueces River, 3,084 feet east line, is standing at 790 feet.

Nueces County

Pearson and others' No. 1 Bluntzer, Block 3, is standing at 3,507 feet. R. & G. Corp's No. 1 Emily Wright Perkins, W. W. Wright Survey, 150 feet west line, 1,920 feet south line, is standing at 3,150 feet; No. 1 Roberts is location; No. 1 Ragland is standing at 3,003 feet. Nueces River Basin Development Co.'s No. 1 F. C. Allen, G. Farrier Survey, 1,596 feet south line, 474 feet west line, at 3,416 feet is shut down, due to high water of Nueces River.

Victoria County

Humble Oil & Refining Co.'s No. A-1 Kohutek, S.A.&M.G. No. 5 located 1,945 feet southwest lines, 900 feet northwest lines, is location; No. 1 G. Knape, Section 6, R. R. Co. Survey, is location; No. 1 G. F. Oliver, J. H. Poindexter Survey, 2,489 feet southeast lines, 3,023 feet northeast lines, at 176 feet is setting surface casing; No. A-3 Jay J. Welder, D.L. &C. Survey, 1,634 feet southeast lines, 736 feet southwest lines, at 1,260 feet is drilling (deep test).

San Patricio County

Houston Gulf Gas Co.'s No. 3 Welder, 3 miles east of Welder Switch, is drilling below 2,000 feet. George B. Pickett's No. 1 Whitworth, NW NW Section 60, at 3,318 feet is reaming down to test sand.

Williamson County

J. C. Hawkins' 1½ miles northwest of Thorndale, southwest of discovery well, partly in Williamson County, to be a Trinity test drilled in Williamson County.

Zavala County

Tritex Oil Co.'s No. 1 Clay Burns, 2 miles northwest of gas well on West ranch, at 780 feet is drilling; No. 4 West is at 740 feet (corrected depth), had 12 feet of liquid asphalt at 665 feet; No. 5 West, 1,000 feet west of No. 2 at 850 feet blew in while setting casing; estimated 30,000,000 feet; No. 1 Childress, in La Pryor Townsite is drilling at 1,095 feet. Witherspoon Oil Co.'s No. 1 Ike Pryor at 550 feet is setting casing in brown shale, hole caving.

SOUTHWEST TEXAS

(Continued from Page 59)

Luling townsite, Block 32, is location in center of lot 30.

Gulf Production Co.'s No. 13 R. W. Carter, G. Hinds Survey, is location 300 feet southeast of No. 11.

The Texas Company's No. 9 Merriweather, A. Floyd Survey, is location 300 feet northeast of No. 7.

Lutex Oil Inc. No. 6 J. Wilson, A. Floyd Survey, is location 300 feet west line, 175 feet south line.

Jim Hogg County

T. J. Conway's No. 2 Leyendecker, Survey 234, Block 4, located 50 feet west line, 450 feet north line, has derrick up.

Refugio County

Saxet Gas Co.'s No. 7 Claude Heard has derrick up. Union Exploration Co.'s No. B-2 Rooke, is location. Houston Oil Co.'s No. 12 Fannie V. W. Heard, is rigging up. Mission Drilling Co.'s No. 1 Julian Shay is location.

Milam County

Elbert Williams' No. 1 Tom Dhigut, Davis Survey, 150 feet east line, 400 feet north line, is rigged up.

Guadalupe County

The Texas Company's No. 1 Dallas Wilson, Darst Survey, is moving in derrick and machinery.

Walton's No. 1 Nolte, 3 miles southeast of Seguin, has derrick up.

Nueces County

Spencer & Rhodes' No. 1 Texas Company fee, is location in tract No. 6.

San Patricio County

Magnolia Petroleum Co.'s No. 1 Miller Ranch, is location 300 feet southeast of Ed Leach's No. 6 Miller.

Webb County

Shepard and others' No. 1 King-Harper, Survey 323, is location 377 feet north line, 1,560 feet east line.

Zapata County

H. Muckelroy's No. 2 Trevino, Survey 66, Block 3, is location 150 feet north and west lines.

Marts & Beavens' No. 1 Trevino, Survey 1, Block 2, located 150 feet southeast lines, 150 feet southwest lines, is rigging up.

Driscoll Field

Robert Driscoll's No. 16 Driscoll, Survey 448, located 2,650 feet east line, 4,000 feet north line, at 2,896-2,906 feet, tested 1,000 feet of oil and water, shut down.

Humble Field—Duval

Humble Oil & Refining Co.'s No. 22 Kohler, Survey 395, located 495 feet west line, 165 feet north line, at 1,854 feet, is showing gas, oil and salt water; No. 23 Kohler, Survey 404, located 1,485 feet south and west lines, drilling at 75 feet; No. 25 Kohler, Survey 172, located 165 feet north and west lines, at 28 feet; No. 26 Kohler, Survey 251, located 495 feet east line, 165 feet north line, at 1,680 feet; No. 27 Kohler, Survey 399, located 215 feet north line, 165

feet west lines, at 1,349 feet; No. 28 Kohler is location. Sun Oil Co.'s No. 1 Lopez, Survey 731, 15 feet north line, 2,000 feet east line, is drilling at 500 feet.

Schoolfield-O'Byrne Field

Magnolia Petroleum Co.'s No. 7-B Hahl, Survey 61, located 650 feet south line, 2,950 feet east line, at 2,337-39 feet, is in sand, testing; No. 3 Hahl, Survey 250, Block 24, located 450 feet north line, 150 feet east line, is rigging up. S. & O. Oil Co.'s No. 4 Hahl, Survey 250, Block 23, located 150 feet south line, 450 feet east line, has derrick up. G. M. Partee's No. 2 Moody, Survey 60, located 450 feet west line, 150 feet north line, is location.

Randado Field—Jim Hogg

Magnolia Petroleum Co.'s No. 42 M. S. Bank, Survey 235, located 330 feet west line, 4,254 feet north line, is drilling at 2,350 feet. Randado Oil Corp.'s No. 35 Palacious, Survey 291, Block 2, located 150 feet south line, 450 feet east line, is standing at 100 feet.

Henne-Winch-Fariss Field

George S. Marshall's No. 4 Holbein, Survey 11, Block 10, Share 3, has derrick up; No. 5 Holbein, Survey 15, Block 10, Share 3, is location 150 feet north and west lines.

Schott Field—Webb

Livingston & Payne's No. 1 Guerra-Ochoa, Survey 58, located 917 feet east line, 470 feet south line, at 1,630-35 feet, is preparing to set casing.

Mid-Ojuelos Field

Crown Central Petroleum Corp.'s No. 1 E. Garcia, Survey 463, located 900 feet east line, 150 feet south line, at 80 feet, is drilling.

Carolina-Texas Field

W. R. Shankle's No. 1 Webster, NE SE, Survey 684, located 150 feet south and west lines, at 3,045 feet, is showing some oil, moving on rig. Trapshooter Reilly Oil & Royalties Co.'s No. 1 Benavides, Survey 685, NE NW, located 150 feet north and east lines, at 3,050 feet, set casing. George S. Marshall's No. 1 Webster, Survey 684, S half NW, located 150 feet north and east lines, is rigging up. Carolina-Texas Oil & Gas Co.'s No. 7 Benavides, SE NE, Survey 683, located 1,000 feet east line, 153 feet south line, has spudded in.

Magnolia-Cole Field

Cole Petroleum Co.'s No. 67 Benavides, Survey 412, Block 12, located 313 feet east line, 160 feet north line, at 38 feet, is standing. Magnolia Petroleum Co.'s No. 1 J. G. Valdez, Survey 754, Block 15, located 150 feet south and west lines, has derrick up; No. 1 A. Benavides, N half of Survey 660, 660 feet south and east lines, is location; No. 1 M. Benavides, N half NW, Section 660, south and east lines, is location; No. 1 C. Benavides, Survey 660, is location 660 feet north and east lines; No. 1 Lopez, Survey 455, is location 660 feet north and west lines.

Cole Gas Field

Trussell-Cezeaux-Putman's No. 3 Bruni, Survey 10, Block 30, located 300 feet northwest lines, 150 feet northeast lines, is drilling at 200 feet. O. W. Killam's No. 10 Bruni, Survey 9, Adams Subdivision, located 1,449 feet northwest lines, 150 feet southwest lines, is drilling at 1,450 feet.

Jennings Field—Zapata

South Texas Production Co.'s No. 1 Roy Jennings, Mira Flores Grant Survey, located 18,055 feet southwest lines, 11,040 feet southeast lines, is drilling at 860 feet. Magnolia Petroleum Co.'s No. 1 Cuellar, Survey 246, located 660 feet northeast lines, 660 feet southeast lines, is drilling at 2,607 feet. May & Holder's No. 1 Cuellar, Cerrito Blanco Survey, 150 feet northwest lines, 446 feet southwest lines, is drilling at 1,600 feet.

Somerset Field—Atascosa

Schimmel Production Co.'s No. 3 H. F. Gayle, C.E.P.I.&M. Survey, Block 2, is location 946 feet east of No. 1.

Yoast Field—Bastrop

Atlantic Oil Production Co.'s No. 7 Yoast, A. Garcia Survey, 300 feet northeast of No. 6, at 700 feet, is drilling in shale The Texas Company's No. 7 A. Garcia, 1,000 feet northwest lines, 150 feet northeast lines, is drilling at 1,500 feet in shale; No. 1 Yoast, offset to the Amerada well, is rigging up.

Pettus Field—Bee

Mission Drilling Co.'s No. 1 Ray is pulling screen, cleaning and taking new measure.

Dobrowolski Field—Bexar

Amelia Balzart's No. 3 J. P. Adams, 150 feet from road, offsetting No. 1 Dobrowolski, has derrick up.

Somerset Field

American Central Oil & Gas Co.'s No. 4 McConnell, W. G. Baker No. 138 Survey, located 806.6 feet east line, 685.5 feet south line, is rigged up and standing. W. H. Kennon's No. 2 W. H. Kennon, M. F. Roderiquez Survey, 1,500 feet north, 15 degrees east of No. 1, is drilling at 983 feet.

Gas Ridge Field

Medio Oil Co.'s No. 1 Cohen, 500 feet southeast of No. 7, is shut down at 470 feet.

Joe Bruner Field—Caldwell

Tip de Armand's No. 3 G. F. Carter, Hinds Survey, 50 feet north and west lines, is location. E. R. Brawn and C. O. Miller's No. 2 R. W. Carter, Gerren Hinds Survey, 300 feet north of No. 1, 150 feet north and west lines, has derrick up. Cranfill & Reynolds' No. 3 Hanson, James Hinds Survey, is at 2,735 feet in Edwards; No. 2-A J. L. Northcut, S. Shupe Survey, 300 feet southwest of No. 1, is location; No. 3 Northcut is at 2,770 feet in chalk. Forest Oil Co.'s No. 1 Mrs. Moore, is fishing for casing at 1,498 feet. Gulf Production Co.'s No. 13 Carter is at 1,365 feet in shale; No. 5 J. L. Northcut at 2,670 feet is waiting on pump; No. 6 J. L. Northcut, James Hinds Survey, at 1,789 feet is in shale; No. 7 J. L. Northcut, James Hinds Survey, is at 2,365 feet in chalk; No. 7 W. L. Smith is at 2,427 feet in Taylor. T. C. Hadley's No. 1 J. M. Hanson, James Hinds Survey, 150 feet south and east lines, is shut down at 2,640 feet; No. 2 Merriwether, A. Floyd Survey, 450 feet west line in center of tract, at 2,743 feet is installing pump; No. 3 Merriwether, A. Floyd Survey, is shut down at 440 feet. Humble Oil & Refining Co.'s No. 2-B B. M. Briscoe, is location 206 feet north line, 150 feet west line; No. 3-A M. Briscoe at 2,705 feet is putting on pump; No. 4-A M. Briscoe, 206 feet north line, 150 feet east line, is rigging up; No. 1-B M. Briscoe at 2,704 feet is swabbing; No. 2-B M. Briscoe is derrick; No. 2 C. F. Dye, 300 feet north of No. 1 and west line, is rigging up; No. 2-A Floy Gray, James Hinds Survey, 150 feet west line and 450 feet north line, is at 2,230 feet in Taylor; No. 1-B Floy Gray, is at 2,713 feet, standing; No. 2-C Floy Gray at 2,400 feet in chalk; No. 3 Addie Hinds, James Hinds Survey at 2,678 feet setting casing; No. 3-A Johnson, James Hinds Survey, is rigging up rotary; No. 3-B Johnson, James Hinds Survey, 206 feet south and 150 feet east lines, is rigging; No. 8-B Moses & Baggett at 2,259 feet in Taylor; No. 9-B Moses & Baggett at 2,365 feet in chalk, standing; No. 3-A J. L. Northcut at 2,385 feet in chalk; No. 4-A J. L. Northcut is rigging up; No. 1-B J. L. Northcut at 2,297 feet in chalk; No. 2-B Northcut at 2,121 feet in Taylor; No. 2-B Clyant Smith at 1,744 feet in shale; No. 3-B Clyant Smith at 500 feet in shale and boulders; No. 2-C J. R. Tiller, located 206 feet north line, 150 feet east line "C" lease, at 2,325 feet in chalk; No. 1-D J. R. Tiller, 150 feet west line, 206 feet north line "D" lease, at 2,404 feet in chalk; No. 3 T. A. Tiller, located 450 feet north line, 150 feet east line of "E" lease, at 2,175 feet in Taylor. Luling Oil & Gas Co.'s No. 1 G. R. Carter, Gerren Hinds Survey, 150 feet out of northeast corner, is rigging up to deepen from 2,704 feet. Lutex Oil Co.'s No. 6 Wilson, A. Floyd Survey, at 683 feet, is standing. Swearingen Trustee's No. 1 Caldwell County Lands, James Hinds Survey, is shut down at 2,503 feet, due to litigation. Morgan-Duke's No. 2 Cora Malone, A. Floyd Survey, located 300 feet southwest of No. 1, is partially rigged up. Shell Petroleum Corp.'s No. 2 Dye, James Hinds Survey, at 475 feet in shale and boulders; No. 6 R. W. Malone, A. Floyd Survey, 700 feet south and east lines, is location; No. 2 Clyant Smith is rigging up. H. J. Powell, trustee's No. 2 Cora Malone, A. Floyd Survey, located 300 feet south of No. 1, 150 feet west line, at 2,650 feet is swabbing. The Texas Company's No. 8 Merriwether is standing at 2,786 feet, shot casing; No. 9 Merriwether, A. Floyd Survey, at 2,250 feet is in Taylor. Thurman & Brown's No. 1 Beversdorff, A. Floyd Survey, is location 150 feet southeast lines, 131 feet southwest lines.

Dale Field

The Texas Company's No. 2 J. Moore, J. Gilbert Survey, located 600 feet northwest lines, 1,600 feet southwest lines, at 1,400 feet in shale.

Kingsville Field—Kleberg

Humble Oil & Refining Co.'s No. 4 Flato, Block 10, Section 40, located 250 feet east line, 450 feet north line, at 6,000 feet is drilling.

Cartwright Field—Live Oak

Houston Oil Co.'s No. 1 T. G. Parr, J. McMullen Survey, located 532 feet southwest lines, 635 feet northeast lines, at 2,070 feet, shut down.

Agua-Dulce Field—Nueces

Agua Dulce Oil & Gas Co.'s No. 1 Otto Wolter, Section 34, Benton's pasture, is standing at 2,047 feet. R. & G. Corp.'s No. 1 Brown, George P. Hall Subdivision, location Section 87, C SE NW; No. 2 Ed Allen, located 150 feet north and east lines, at 1,750 feet, is drilling.

MICHIGAN FIELDS

(Continued from Page 61)

will lay a line to use the gas in the Muskegon motor plant. Gas from the main portion of the Muskegon Township Field is now being used to the extent of about 8,000,000 feet a day.

The two new locations in Muskegon Township are: Concord Oil & Gas Co.'s No. 1 Andrew Luinstra, SW SE, Section 6-10-16, and L. E. Kennedy's No. 4 Charles I. Giles, NE SE, Section 6-10-16. Rigs are moving in for both.

F. J. Marxer and others will drill No. 1 Metcalf, NE SE, Section 12-10-17, Laketon Township.

Newaygo County

The only well completed in western Michigan wildcat territory was Carl Prather and George R. Stacey's No. 1 Stacey, SE NE, Section 11-11-14, Bridgeton Township, Newaygo County, which was dry in the Dundee at 2,550 feet.

The Melrose Oil & Gas Co.'s No. 1 Woodward and Hatch, SE SE, Section 5-12-12, Brooks Township, had indications of successful completion in the upper Traverse when it was plugged back from the Dundee and flowed with a lot of gas and about 250 bbls. of oil at 2,415 feet. It is planned to pump oil and water with estimates of probable daily recovery as high as 500 bbls.

The Pennsylvania Oil & Gas Co.'s No. 1 Bert Snow, NW SE, Section 23-15-15, Leavitt Township, Oceana County, had a show of 400 feet of oil and about 200,000 feet a day of gas in the Dundee at 2,660 feet.

Owen L. Coon is rigging up for the Oceana Oil Corp.'s No. 1 J. Vanderwaal, SW NE, Section 35-14-17, Shelby Township, just north of New Era.

Ottawa County

For more than 200 feet, Kelley Goldboss, contractor and independent operator, in western Michigan, has been drilling through salt heavily saturated with gas and oil in the Wright Oil Co.'s No. 1 Joseph Kluting, SW NW, Section 10-8-13, Wright Township, about 9 miles west of Grand Rapids. The well is drilling at 2,740 feet with the oil and gas saturation steadily growing heavier.

Mount Pleasant Field

Two wells which struck commercial production in the upper Traverse provided the outstanding development in the Mount Pleasant-Midland Field. The East Ohio Gas Co.'s No. 1 Weidman, NE SW, Section 12-14n-3w, Chippewa Township, Isabella County, caught fire and the rig burned down. Oil was struck in the upper Traverse at 3,040 feet and the well is making about 200 bbls. a day with the tools and line in the hole. A new rig is being erected to complete the well as the first Traverse producer in the field.

The South Bend Syndicate's No. 1 J. McNeal, NE SE, Section 9-14n-3w, more than a mile west of present production, also had a good show of oil in the upper Traverse this week at a reported depth of 3,015 feet. It is now drilling at 3,250 feet with from 1,000 to 1,500 feet of oil in the hole. If dry in the Dundee it may be plugged back. It was estimated when it came in that it would make 100 bbls. a day but it is reported bottom salt water was struck just below the oil.

Conservation Officials

Floyd R. Frye, production superintendent of the Empire Oil & Gas Co. at Bartlesville, Okla., has accepted the position as supervisor of oil and gas conservation under the geological survey division of the Michigan department of conservation. Colin C. Rae, former United States geological survey supervisor in Oklahoma, notified State Geologist R. A. Smith he would be unable to accept the Michigan position, and will remain with the Skelly Oil Co.

Einar A. Newman, who has served for a year on the conservation department staff in the Muskegon Field office, has left for Mount Pleasant where he will become associated with the Shell Petroleum Corp. Mr. Newman will be succeeded by C. C. Riggs, an instructor in the department of geology at the University of Michigan. Fred Loveday, from Michigan State College, will also join the Muskegon staff.

KANSAS FIELDS

(Continued from Page 53)

in the county is the Kinney-Coastal Oil Co.'s No. 1 Beal, C SW, Section 23-14-5w, Saline County, which is drilling at 3,540 feet.

Phillips Petroleum Co.'s No. 1 Johnson, SW NE, Section 9-13-19w, Ellis County, encountered a small showing of oil in the top of the Oswald lime at 3,479-87 feet, but is now drilling ahead at 3,492 feet. It showed a half bailer of oil an hour, some water was picked up at 3,465-67 feet.

Producers Oil Co.'s No. 1 Jones, SW NE SE, Section 31-26-2e, Sedgwick County, found water in the Simpson at 3,359-75 feet. It is now shut down at 3,409 feet.

Marland Production Co. has made a location in the NW cor., Section 25-28-4w, Sedgwick County, operations will begin soon, rig timbers having been ordered out. The test is located in the western part of the county on a block of about 10,000 acres that has been core drilled to the test structure. It is reported that this block is looked upon with much favor by the geologists in that region.

Prairie's New Pipe Line

The Prairie Pipe Line Co. is building a new 6-inch line from the Walnut station in Butler County to the Robbins Pool in the southeastern part of Sedgwick County. The line will be 18 miles long and will be ready for operation in 30 days. Construction work on the line was started this week. While there are only two producing wells in the pool at this time there are 10 drilling wells in the area. The two completed wells have a daily average production of 600 bbls. Several of the drilling wells are nearing the producing horizon.

Sedgwick County Production

The production by companies and leases in the Sedgwick County area for June 13 is shown by the following:

Company, lease—	S.T.R.	Wells	Bbls.
Aladdin:			
Bennington	6-26-1	2	1,130
Allison et al:			
Kelly	6-26-1	1	40
Barnsdall:			
Samuel	24-25-1	1	35
Bu-Vi-Bar:			
Branch	6-26-1	2	813
Bright "A"	6-26-1	2	248
Bright "B"	6-26-1	4	2,578
Byers	7-26-1	1	145
Emrich	6-26-1	2	805
T. Goodrich	6-26-1	5	355
Lantz	12-26-1w	1	318
Corr	1-26-1w	4	3,909
Lyons	7-26-1e	3	2,909
Roll	7-26-1e	1	333
Rothfuss	6-26-1e	1	Off
Shawver	7-26-1e	5	5,149
Wright	12-26-1w	3	3,996

Woodard	7-26-1e	1	430
Connell:			
Cross	27-25-1w	1	12
Davis-Skelly:			
Wilson	1-26-1w	8	3,250
Derby:			
Bowling	6-26-1e	1	127
Gorman	6-26-1e	4	1,777
Dickey et al:			
Robbins	21-28-1e	1	480
Gypsy:			
Hammant	14-26-2e	2	371
Marland:			
Goodrich	16-25-1e	2	180
Mary Jane:			
Fitch	6-26-1e	2	890
Montour:			
Lavender	6-26-1e	2	1,349
Patton & Wentz:			
Swenson	6-26-1	1	180
Phillips:			
Difford	1-26-1w	3	300
Piefer	6-26-1e	1	120
Prairie:			
Cross	27-25-1w	1	45
Swyser	36-25-1w	3	325
Pyle & Sutter:			
Caldwell	6-26-1e	2	770
Reynolds & Hays:			
Roll	7-26-1	1	120
Shell:			
Fisher	15-26-2	1	101
Lygrisse	15-26-2	1	101
Stearns & Streeter:			
Roll	7-26-1	1	635
Tidal:			
Scherger	6-26-1	3	340
Vickers:			
Nessen	6-26-1	3	680
White Eagle:			
Baylor	6-26-1	1	35
Robbins	20-28-1	1	Off
Total		83	35,580

Barber County

Skelly Oil Co. made location for No. 1 Skinner, SW cor. NE, Section 13-34-15w Rowland and others' No. 1 Pickens' NE cor. NW NE, Sectios 27-30-14w, is dry and abandoned at 4,718 feet.

Butler County

Phillips Petroleum Co. has the rig up for No. 4 Tatum, SW cor. NW NW, Section 9-27-6.

Coffey County

Ellis & Ritchie's No. 1 Delmer, SW cor. NW NE SE, Section 6-23-15, is running 6-inch casing at 1,486 feet.

Cowley County

McKnabb, Bess and others made location for No. 1 Roberts, SE cor. NE NE, Section 7-33-3.

Edwards County

Amerada Petroleum Corp.'s No. 1 Tansil, C NW SW, Section 32-25-19w is dry and abandoned at 5,255 feet.

Ellis County

Phillips Petroleum Co. made location for No. 2 Shutts, SW cor. NE, Section 5-12-17w. Location was also made for No. 1 Weiger, NE cor. Section 19-12-17w. The Prairie Oil & Gas Co.'s No. 1 Wieland, SE cor. NW, Section 1-13-16w, is being abandoned at 3,246 feet. Twin Drilling Co. and others' No. 1 Dechant, NE cor. SE, Section 12-13-16w has been abandoned at 3,440 feet.

Elk County

Theta Oil Co. made location for No. 1 Walker, NE cor. SE, Section 34-31-10.

Hood & Frazier's No. 1 Logsdon, C SE SE, Section 25-30-9 has been completed for 250,000 feet of gas in sand 1,450-57 feet.

Greenwood County

Transcontinental Oil Co. made location for No. 5 Pixlee, C NW NE, Section 10-22-10. No. 6 Pixlee, SE cor NW NE, Section 10-22-10 is also a location. The Texas Company has the rig up for No. 4-C Edwards, NW, cor. SW SE, Section 21-23-11. Location has been made for No. 5-C Edwards, NE cor. SW SE, Section 27-23-11. The Prairie Oil & Gas Co. made location for No. 3 Johnson CNL SE SW, Section 15-24-12. Paul E. Parker's No. 1 Wiley, SW cor. SE SW, Section 28-26-11 is dry and abandoned at 1,860 feet.

Phillips Petroleum Co.'s No. 3 Pixlee, SE cor. NW, Section 10-22-10 made 45 bbls. in sand 2,250-63 feet. Empire Oil & Refining Co.'s No. 1-B Norton, SW cor. SE, Section 15-22-12 has been completed for 115 bbls. in sand 1,766-69 feet. No. 2 Laird, SE cor. NE SW, Section 21-23-11 made 75 bbls. from sand 1,893-1,990 feet. No. 13 Edwards, NW cor. SE NW, Section 21-23-11 has been completed for 25 bbls. in sand 1,951-65 feet. The Texas Company's No. 3-C Edwards, SW cor. NW SE, Section 21-23-11, made 640 bbls. in sand 1,874-1,964 feet.

Harper County

Amerada Petroleum Corp's No. 1 Mandeville, C SE SE, Section 24-34-6w is a dry hole at 5,452 feet.

Marion County

Youker and others are moving in rig material for No. 1 Riffel, NW cor. SW SE, Section 10-17-4.

Sedgwick County

Bu-Vi-Bar Petroleum Corp. and others' rig is up for No. 5 Carr, NW cor. SE, Section 1-26-1w Valley Center Pool. T. B. Slick and others moved the rig out for No. 1 McKay, SW cor. NE, Section 11-26-2. The Texas Company has the rig up for No. 1 Blodd, NW cor. SW SW, Section 21-28-1.

Bu-Vi-Bar Petroleum Corp. and others No. 2 Carr, NW cor. NE SE, Section 1-26-1w made 1,050 bbls. in sand 3,356-64 feet. Aladdin Petroleum Corp's No. 2 Benningfield, SW cor. NW SW, Section 6-26-1 has been completed for 650 bbls. in sand 3,370-76 feet. Bu-Vi-Bar Petroleum Corp. and others' No. 2 Bright "B", SW cor. NW SW, Section 6-26-1 was completed for 950 bbls. in sand 3,-365-69 feet. No. 3 Bright "B", NE cor. SW SW, Section 6-26-1 made a 700-bbl. well in sand 3,375-79 feet. Derby Oil Co.'s No. 2 Gorman, NE cor. NW SW, Section 6-26-1 produced 600 bbls. in sand 3,376-78 feet. Gypsy Oil Co.'s No. 1 Hamant, SW cor. NW, Section 14-26-2 made 1,675 bbls. in sand 3,163-67 feet.

Sumner County

Dickey and others made location for No. 2 Kratz, SW cor. NW NW, Section 26-34-2. The Prairie Oil & Gas Co.'s No. 4 Olsen, NW cor. NE NW, Section 3-35-2 flowed 1,960 bbls. from sand 3,574-75 feet.

Trego County

R. E. Day and others' No 1 Gugler, SW cor. NE NE, Section 36-12-21w is rigging up.

ROCKY MOUNTAIN AREA

(Continued from Page 64)

shut down at 4,508 feet. The Transcontinental Oil Co.'s No. 1 McWhorter, SW NW Section 6-3s-22,, is drilling at 4,205 feet in brown sandy lime and fighting cavy ground.

In Chaves County, the Transcontinental Oil Co.'s No. 1 Robbins, SE cor. Section 1-14-28, is drilling at 3,490 feet in anhydrite and red shale, and L. B. Tannehill's No. 1 Butler, SE cor. Section 15-12-24, was abandoned at 1,155 feet with a hole full of water at 1,145-55 feet.

In Roosevelt County, Sloan & Smith's No. 1 Lovern, C SE Section 4-3s-35, is drilling at 2,715 feet in red sand.

In San Juan County, in the northwestern part of the state, the Continental Oil Co.'s No. 17 Santa Fe Corp., C NE, Section 2-29-19, on the Rattlesnake Dome, the deep test to the Pennsylvanian, which ran into a pay horizon at 6,771 feet after going through a salt water sand, is on production temporarily at a total depth of 6,774 feet to see what it will do while determining the next step. Efforts to underream and lower the 4¾-inch casing to make a water shutoff proved too difficult and then several efforts were made to run a string of 2½-inch tubing with a packer, but this, likewise, as unsuccessful. The well is making 700 to 800 bbls. of oil a day with a much larger quantity of water. The problem of controlling the water is a difficult one on account of the depth, the size of the hole and the heavy pressure. The Childers Drilling & Producing Co.'s No. 2 NW NW, Section 24-31-16, on the Westwater structure, encountered another water sand at around 2,500 feet and water is standing 2,300 feet in the hole. The Kutz Canon Oil & Gas Co.'s No. 1 Day, SW cor. Section 20-28-10, in the Kutz Canon area, struck another flow of water at 695 feet and the 10-inch at 687 feet will be underreamed and lowered for a shutoff. The Great Mesa Oil Syndicate's No. 1 Roderick, (Greathouse) SW SW, Section 11-22-14, Stoney Butte Structure, is drilling at 600 feet. This well is being drilled by Shaffer & Atkins who have made a contract with the Blackrock Oil Co., to drill its No. 2 Swinburne, SE cor. SW, Section 11-25-13, to 2,500 feet. It has been standing for some time at 1,550 feet with the 10-inch cemented on bottom.

A new location has been made in the west end of Rio Arriba County by the San Juan Petroleum Co. for its No. 1, Section 15-30n-7w. William T. O'Bryan will be in charge of drilling. This is in what is known as the Gobanador district.

In McKinley County, J. W. Halsell's No. 1 Santa Fe, Section 17-18-9, in the Seven Lakes district, is drilling at 1,800 feet after casing off a show of oil at 1,680 feet, and the San Juan Coal & Oil Co.'s No. 1 Santa Fe, NW SE, Section 27-18-9, set the 8¼-inch at 1,704 feet and is drilling ahead.

UTAH

Only 14 feet of new hole was made the past week in the Continental Oil Co.'s No. 1 Boundary Butte, Section 22-43-22, in San Juan County, southeastern Utah, on account of the depth, heavy gas pressure and the precautions being taken in what is regarded as one of the most important tests ever drilled in that state. At last reports it was drilling at 5,211 feet in shale. There has been no important change since the last gas flow was encountered at 5,102 feet except that the bit went back into shale. A soft formation that makes a suitable reservoir appears to be the only thing needed to bring this well in as an oiler.

The Phillips Petroleum Co.'s Shick, C NE, Section 16-27-16, on the Barrier Creek Dome in Wayne County, is still having trouble with cavy ground at a total depth of 4,985 feet. The bottom has been cemented twice in efforts to stop the caving and both failed. Another mixture will be used in the next effort. The hole is full of salt water and the intentions are to case this off before drilling deeper. The Diamond Oil Co.'s No. 4 SE NW, Section 16-8s-5e, Utah County, is drilling at 160 feet with the 15½-inch at 102 feet. The Western Venture Corp.'s No. 1 Krumvieda, SE NW, Section 6-5s-21, on the Vernal monocline in Uintah County, is bottomed at 1,515 feet and straightreaming to set the 4¾-inch on bottom. The same company is reported to have made a deal with the Home Oil Co., of Ogden, Utah, to complete its No. Spahr, Section 8-5s-21, on the Dog Valley structure, on a 50-50 basis. It was drilling at 1,275 feet at last reports. The Home Oil Co. is reported to have guaranteed the drilling of the hole to 2,000 feet. In the deal it acquired 2,000 acres on the Vernal monocline.

In Grand County, the Crescent Oil Syndicate's No. 1 McCarthy, SW SW, Section 27-21-19, in the Crescent area, is drilling at 1,500 feet and having trouble with caving ground. The 8¼-inch will be lowered to make a formation shutoff. The Utah Southern Oil Co.'s No. 1 J. L. Shaffer, Section 36-26-20, Cane Creek, is drilling in salt at 3,551 feet. There was a shale break at 3,420-60 feet.

COLORADO

Considerable interest has been aroused in Colorado in a report published in the Denver Post on June 1 crediting Col. Turney Gratz, counsel for The Helium Co., of Louisville, Ky., with giving out a statement in Washington to the effect that the largest and most valuable helium gas area in the world has been found in the Sinbad Valley in the northwestern corner of Montrose County, in western Colorado. The gas, according to this report, has a helium content of 7.07 per cent as against 3.6 per cent for the highest content previously known and 1.75 per cent for the gas in the Amarillo Field from which the government is recovering helium. The find, according to this dispatch, was made by Lieut. R. R. Bottoms, naval reserve officer and chief chemist for the Helium Company.

Confirmation and details of the report are not available in Denver, but it has aroused widespread interest. None of the oil companies has any record of any wells having been drilled in the Sinbad Valley, but several years ago 3 wells were drilled farther to the south in the Paradox Valley by the General Petroleum Co. These wells went through thick beds of salt, are located in the area where carnotite ores for the recovery of radium have been mined extensively and which cut strata yielding considerable gas. Whether this gas contained helium is not known. It was thought that some confusion between the Sinbad Valley and the Paradox Valley might have resulted, but reports from the western slope do not indicate this. The Sinbad valley is located along the boundary between Montrose and Mesa Counties just east of the Utah line. A report from Grand Junction said that if helium gas has been found in the Sinbad Valley, the samples must have been taken from a natural gas seep known for many years to have existed in the valley as residents declare that no well has been drilled. This gas seep comes from a fissure in the rocks and has been making gas as far back as white men have a knowledge of the valley. This same reports says that the valley is known to contain a well-defined structure and that the Texas Production Co. has leases on the deeded land and the Midwest Refining Co., has the permits on the government land.

Colorado had little news of importance from the wildcats this week, but reports from the Magnolia Co.'s test in Section 22-5-5, in Cimarron County, in the Oklahoma Panhandle, to the effect that it ran into salt water at 4,125 feet caused some discouragement among the operators who hold leases in southeastern Colorado just to the north of this test. The Magnolia well is less than a mile from the Ramsey test drilled more than 2 years ago which had some production, though not commercial. It was higher than the Ramsey well for the first 2,000 feet, or more, and then the formations began to thicken and it is understood that the sand was found lower than in the Magnolia well.

The Five Square Oil & Gas Co.'s No. 1-A State, SW cor. Section 16-4n-69, on the Berthoud structure in Larimer County, which commenced making some gas above the Muddy sand at 3,651 feet, has been drilled to 3,730 feet. The gas increased to about 1,000,000 feet and some live oil has shown in the bailer, probably 8 to 10 bbls. being on the pump. The oil is high grade, testing 42 gravity. The tools were lost at this depth and the well has been shut down for several days waiting for fishing tools ordered from Wyoming. The hole is about in the horizon where the Midwest Refining Co.'s No. 1 State, less than a mile to the north, drilled several years ago, made considerable gas and about 10 bbls. a day of oil.

Weld County Wildcat

Another wildcat that is reaching an interesting stage is the Platte Valley Petroleum Co.'s No. 1 Taylor, NE SW SW, Section 24-6n-61, on the Greasewood structure in Weld County, some distance east of the front range. The operation was started 3 years ago with the Dakota as the objective. It is now bottomed at approximately 4,400 feet and reports from the well are to the effect that it is making considerable gas and has a good show of green oil in a hard blue-gray sandstone. The show amounts to several gallons altogether. This well had some water at 1,261 feet, and at 3,200-85 feet cut a sand showing some gas with salt water. There was a good show of oil at 3,650 feet and at 2,185-2,485 it was making nearly 1,000,000 feet of gas a day.

In Rio Blanco County, the White Eagle Oil & Refining Co.'s No. 1-A Fordham, NW SW, Section 9-2s-96, Piceance Creek, is drilling at 920 feet with the 15½-inch cemented at 450 feet. In Jefferson County, near Denver, the Ruby Hill Oil & Gas Co.'s No. 1 Braden, SE cor. Section 24-4s-69, is shut down for repairs at 3,175 feet and is preparing to run a string of 6¼-inch pipe.

The two tests drilling in Yuma County, in the eastern part of the state near the Kansas line, both of which are headed for the Pennsylvanian, which has never been drilled in that district, are getting away to a good start. The Phillips Petroleum Co.'s No. 1 Andrews, SW NW NW, Section 3-2s-42, 2 miles west of the Kansas line, cemented the 15½-inch at 768 feet and is drilling below that depth. Major Petroleum, Inc. No. 1-A Winegar, SE NW, Section 7-2s-43, 8 miles west of the Phillips well, is drilling in the Pierre shale at 693 feet.

(Continued on Page 156)

Practical Suggestions in Refining

By W. T. Ziegenhain

SCRAP PIPE USED IN FIRE-PROOF BUILDINGS

A number of oil companies during the past few years have come to realize that, in the construction of buildings for shops, warehouses, garages, sheds of various descriptions, temporary housings over pumps, recording instruments or other equipment, old pipe can be salvaged and used with a material reduction in construction costs. Salvaged pipe is so being used throughout all phases of their business, namely, the production, refining and marketing ends of the industry. The more general adoption in the oil industry of welding has been one of the main reasons why the use in building construction of old pipe of all descriptions has been made possible.

One of the best examples of how such pipe can be employed is the garage of the Union Oil Co. of California at its Santa Fe Springs, California, yards. This garage is a 50 by 60-foot structure. It was built with salvaged pipe ranging in diameter from 2 to 4 inches. Two-inch pipe was used for trusses; 3-inch, for plates; and 4-inch, for uprights. The skeleton form of this garage was welded (635 welds were made) on the ground, erected in eight hours and finished a few days later. The finished garage cost considerably less than one of the old type, is stronger and is absolutely fireproof

Oil companies that have more old pipe on hand than they can use to advantage in their own departments for building or other purposes will find it to their advantage to investigate the possibilities of disposing of such material to building contractors or to companies planning on the construction of shops, garages, or similar types of buildings. The Continental Oil Co., of Denver, Colo., for example, disposed of thousands of feet of all sized pipe, which was used by the city of Denver in making "stop" signs at street intersections. Operators of fleets of motor buses or trucks often offer another possibility for disposing of old pipe. As an illustration, the Motor Transit Co. of California has built a large number of shelters in southern California for its buses. In the construction of such sheds this company has used all-welded, salvaged 2½-inch and 4-inch tubing.

PURE OIL CO. STARTS ITS NEW PAINT PLANT

The Pure Oil Co. has started operating a new paint plant at its Marcus Hook refinery for the manufacture of all of its paints, varnishes and other protective coatings for use in the refining, production and marketing branches of the company. Rolling mills, ball mills and pebble mills were placed in operation during May and the plant is now operating at capacity 24 hours per day. All equipment and methods of testing which might be found in the most modern paint factories may be found here. It is the intention of the company to study the needs of the production, refining and marketing divisions under the various climatic conditions and perfect paints which will more completely meet the specific needs.

After the paint is made it is filled into containers of 1 gallon capacity or more and shipped to the different company properties. The location of this plant at Marcus Hook is advantageous since large quantities of the raw paint and varnish materials are manufactured along the Atlantic Coast and this affords cheap water transportation for the raw materials taken into the plant. Large quantities of the finished product may be shipped cheaply by water down to the Gulf or by way of the Great Lakes to inland points.

REVISE U. S. MOTOR SPECIFICATIONS AND ADD NEW GRADE AS MOTOR FUEL V

A revision of the U. S. Motor gasoline specifications and the establishment of a new grade of gasoline to be known as Motor Fuel V have been promulgated by the Bureau of Standards and the new specifications will be placed in effect September 11, 1929. Previous meetings of the D-2 Committee of the A.S.T.M. and the Federal Specifications Board led to the adoption of present revision in the U. S. Motor grade in which it was pointed out that under the old specifications there was not enough assurance there would be sufficient volatility in the motor fuel to give quick starting and speedy acceleration. A joint meeting of the advisory board and representative of the Federal Specifications Board of June 11 brought about an agreement on the following specifications.

Master Specification for Gasoline, Motor, United States Government

1. This specification covers the grade of gasoline used by the United States Government and its agencies as a fuel for automobile, truck, tractor, motor boat, and similar engines.

2. Gasoline purchased under this specification shall be described as "U. S. Government Gasoline" with the understanding that this designation always refers to the current specification of the Federal Specifications Board.

3. The gasoline shall be free from water and suspended matter.

Properties and Tests

4. Sampling—Samples shall be taken according to the procedures described in Part 3 of United States Government Master Specification No. 2d, or latest revision thereof.

5. Corrosion Test—Method 530.22. A clean copper strip shall not show more than extremely slight discoloration when submerged in the gasoline for three hours at 122 degrees Fahrenheit.

6. Distillation Range—Method 100.13. When 10 per cent has been recovered in the receiver, the thermometer shall not read more than 80 degrees Centigrade (176 degrees Fahrenheit) nor less than 50 degrees Centigrade (122 degrees Fahrenheit); provided that, for each per cent distillation loss less than 4 per cent, obtained in the A.S.T.M. distillation, the minimum 10 per cent temperature requirements shall be lowered 3 degrees Centigrade (5.4 degrees Fahrenheit). The Government reserves the right by proper provision in the contract or purchase order[1] to lower maximum 10 per cent point either 9 degrees Fahrenheit or 18 degrees Fahrenheit. Administrative action in this respect may be taken by contracting officers to meet the temperature conditions under which the equipment must operate. (See Footnote 1.)

When 50 per cent has been recovered in the receiver, the thermometer shall not read more than 140 degrees Centigrade (284 degrees Fahrenheit).

When 90 per cent has been recovered in the receiver, the thermometer shall not read more than 200 degrees Centigrade (392 degrees Fahrenheit).

The endpoint shall not be higher than 225 degrees Centigrade (437 degrees Fahrenheit).

At least 95 per cent shall be recovered as distillate in the receiver from the distillation.

7. Sulphur—Method 520.11. Sulphur shall not exceed 0.10 per cent.

8. All tests shall be made according to the methods for testing contained in Part 2 of United States Government Master Specification No. 2d (Bureau of Mines Technical Paper 323B), or latest revision thereof.

9. This specification supercedes that part of United States Government Master Specification No. 2d for Lubricants and Liquid Fuels, which covered United States Government Motor Gasoline.

Note 1—Contracting officers are advised that in general the expectation of freezing temperatures warrants the lowest maximum 10 per cent temperature.

Note 2—When U. S. Government Motor Gasoline is to be used for some special purpose, such as that requiring tropical storage, the Government reserves the right to raise the lower limit at the 10 per cent point to not higher than 60 degrees Centigrade (140 degrees Fahrenheit) with the same corrections for distillation loss as given above. This limit, however, should not be applied unless absolutely necessary, since the gasoline so procured is less satisfactory for general purposes.

Master Specification for Motor Fuel V

1. This specification covers a special grade of fuel which may be used by the Government at the discretion of the head of the department or bureau concerned and its agencies, for ambulances, fire engines, emergency vehicles, military and naval equipment, and for other equipment under special conditions.

2. This fuel shall be free from water and suspended matter.

Properties and Tests

3. Sampling—Samples shall be taken according to procedures described in Part 3 of United States Government Master Specification No. 2d, or latest revision thereof.

4. Corrosion Test—Method 530.22. A clean copper strip shall not show more than extremely slight discoloration when submerged in the fuel for three hours at 122 degrees Fahrenheit.

5. Distillation Range—Method 100.13. When 10 per cent has been recovered in the receiver, the thermometer shall not read more than 65 degrees Centigrade (149 degrees Fahrenheit), nor less than 50 degrees Centigrade (122 degrees Fahrenheit); provided that, for each per cent distillation loss less than 4 per cent, obtained in the A.S.T.M. distillation, the minimum 10 per cent temperature re-

(Continued on Page 149)

[1]Special attention is invited hereto.

NEW AND OLD SPECIFICATIONS FOR U. S. MOTOR GASOLINE AND SPECIFICATIONS ON NEWLY ESTABLISHED MOTOR FUEL V

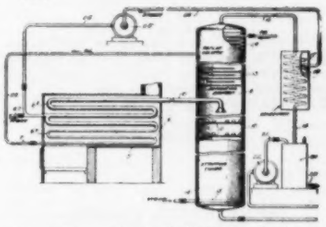
Distillation range—	U. S. Motor Grade Before Sept. 1	U. S. Motor Grade After Sept. 1	U. S. Motor Fuel V
Initial	131° F. max.	.....	.....
10 per cent	.....	*122-176° F.	*122-149° F.
20 per cent	221° F. max.	.....	.....
50 per cent	284° F. max.	284° F. max.	257° F. max.
90 per cent	392° F. max.	392° F. max.	356° F. max.
Endpoint	437° F. max.	437° F. max.	401° F. max.

At least 95 per cent shall be recovered as distillate in the receiver.

*For each per cent less than 4 per cent distillation loss, the minimum requirement on the 10 per cent point may be lowered 5.4 degrees Fahrenheit. Thus, if a sample of gasoline shows a distillation loss of but 2 per cent the lower limit will be changed from 122 degrees Fahrenheit to 111.2 degrees Fahrenheit. The Government reserves the right to raise the minimum 10 per cent specification to 140 degrees Fahrenheit in those cases where the gasoline is to be stored in tropical regions and also reserves the right to lower the maximum 10 per cent specification 9 or 18 degrees Fahrenheit when in the judgment of the commanding officer the atmospheric temperature is low enough to require the use of more volatile gasoline.

Recent Patents

1,676,609. Art of Distilling Hydrocarbon Oils. Roger D. Hunneman, Chicago, Ill., assignor to Standard Oil Co., Whiting, Ind., a corporation of Indiana. Filed December 12, 1924. Serial No. 755,429. 14 Claims. (Cl. 196—85.)



1. The method of distilling hydrocarbon oils comprising passing the oil in a confined stream of restricted cross section through a heating zone into an enlarged separating chamber, separately removing from said separating chamber vapors and unvaporized liquid, passing the unvaporized liquid in countercurrent to a current of steam, and forcing at least a part of said stream and vapors carried thereby into the stream of oil flowing through the heated zone.

10. In distillation apparatus, a tower having an intermediate enlarged chamber, stripping plates therebelow, refluxing plates above said chamber, means for introducing steam into the lower portion of said tower, a heating coil emptying into the enlarged chamber in the tower, means for supplying oil to the heating coils, and means for maintaining subatmospheric pressure within the tower.

1,714,091. Art of Cracking Hydrocarbon Oils. Eugene C. Herthel, Chicago, Ill., and Harry L. Pelzer, Highland, Ind., assignors to Sinclair Refining Co., New York, N. Y., a Corporation of Maine. Field June 11, 1927. Serial No. 198,253. 7 Claims. (Cl. 196—55.)

1. An improved method of cracking hydrocarbon oils, which comprises circulating a charge of oil in a pressure still from a bulk supply drum through heating tubes back to the bulk supply drum and maintaining a body of finely divided absorbent material in the bulk supply drum above supporting means adapted to retain the finely divided absorbent material but to permit free passage of oil and extending entirely across the path of the circulating still charge, heating the oil to a cracking temperature in the heating tubes, taking off vapors including vapors of the desired product under pressure, and agitating the body of finely divided absorbent material in the bulk supply drum.

1,714,454. Apparatus for Cracking Oil. Alfred Schwarz, Upper Montclair, N. J., assignor to Coal & Oil Products Corp., a Corporation of Delaware. Original application filed March 25, 1925, Serial No. 18,076. Divided and this application filed May 20, 1925. Serial No. 31,660. 2 Claims. (Cl. 196—55.)

1. In combination a gas producer, means for spraying oil onto the relatively cool bed of the gas producer, means for supplying steam to the incandescent bed of the gas producer, an oil still heated by the sensible heat of the waste gases of the gas producer, filming apparatus for contacting the gas from the producer and the vapor, recondensing a portion of the vapors from the oil still and means for conducting the residual oil from the still to the relatively cool bed of the producer.

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1—Type "Y" 300 H.P. 6 cylinder, Fairbanks Morse Co., Semi-Diesel Engine as follows:

Less: Exhaust pot, exhaust pipe and fittings, extension shaft, outboard bearing, regular pulley.

With: Individual exhaust pipe, and elbows 5′ 6″ long, built-in Circulating pump, Air Tanks and piping, completely reversed in direction with cylinders turned half around, regular spare parts, tools, literature, radiators and fans including bearings, flywheel 54″ by 9″, fuel tank and equipment, 5½″ compressor direct connected to 1½″ H.P. "Z" Engine.

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6—19′ dia. by 10′ high, 20,000 gallon.
1—20′ dia. by 12′ high, 25,000 gallon.
4—22,000 gallon Parkersburg, bolted.
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A large stock of smaller sizes in both pressure and open tanks. Write for list.
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GEOLOGISTS

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Tulsa, Oklahoma

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25 years experience in the Mid-Continent oil fields. E. J. Davied, Fort Stockton, Texas.

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H. F. Anthony, Anthony Bldg.,
Pecos, Texas.

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Leases and Royalties
W. S. PATTERSON
Pecos, Texas

WINKLER, PECOS, WARD, Loving and Reeves Counties. Leases and Royalties. Hemby & Anderson, Box 633, Pecos, Texas.

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Pursuant to an order of the District Court of Muskogee County, Oklahoma, the undersigned will sell the following described property at private sale to the highest and best bidder for cash:

The east half of the southeast quarter and the northwest quarter of the southeast quarter of Section 18, Township 14 north, Range 17 east, Muskogee County, Oklahoma,

together with all material, equipment, casing, tubing, pumps, tanks, buildings, tools, oil stored thereon and all oil wells located thereon.

Written bids will be received until July 10, 1929, and may be addressed to the undersigned at the address given below.

Dated this 7th day of June, 1929.

W. K. Zachry
Frank Stroupe,
RECEIVER.
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Muskogee, Okla.

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Light Spot Demand in Chicago Market

Nothing Wrong With the Market but the Weather, the Common Saying. Eastern Sellers Invading Territory

By J. B. Waldo

CHICAGO, June 17.—There was only a light spot demand for gasoline in this market on Monday but the refiners were encouraged by the warmer weather and the many cars on the roads over the week-end. The manager of the distributing division of one of the major local companies reported that he drove over 1,000 miles in Wisconsin last week and that the number of cars bearing the license plate of other states equalled those having the Wisconsin plate. There is nothing wrong with the market but the weather, has become a common saying. Refiners were still quoting 9¼ cents for motor gasoline but frankly admitted it was difficult to move at that price as their customers were being quoted freely at 8¾ cents for prompt shipment and occasionally for over the last half of the month.

Marketers were doing a little spot business, some of them claiming the jobbers showed more interest in the market while others could see no difference from a week ago. They were receiving quotations for resale of 8¼ cents from several refiners in the group and of 8 cents on a Group 3 basis from some West Texas plants. Most of these offers were for a certain number of cars which the refiner wanted to move at once. There is considerable selling of gasoline in the eastern part of this territory from Toledo and western Pennsylvania in competition with local refiners and it was claimed today that these Ohio plants were picking up business in some parts of Indiana.

Kerosene Demand Light

The kerosene demand was light and 5¾ cents was commonly quoted. More contracts were closed for furnace oil for next winter but the spot demand was nil. Fuel oil dealers in several cases stated they had received instructions to reduce their shipments on contracts and generally the demand was found to be light, much complaint being made of the low prices at which many industries are now receiving their fuel on contracts.

Should the weather over the week be as good as it is today there would be a stronger market and this would bring in business from jobbers who are deterred from buying as much by the lower prices quoted them from day to day as by the weather and large stocks held by them. It is only a little more than two weeks to the July Fourth holiday which should increase the jobbing demand.

Disappointing Week

Last week was very disappointing in the Chicago gasoline market. Instead of summer this territory has had one of the coldest and most rainy spells that can be imagined, a veritable wet blanket over the gasoline market. In place of drawing on stocks both of refiners and of jobbers, the stocks are believed to have accumulated to some extent. One reason is the insistence on the part of refiners to receive shipping instructions at once on all gasoline bought ahead. It is thought many of the smaller refiners have excessive stocks, for them, at least, from the continued offering of U. S. Motor gasoline in small quantities at as low as 8¼ cents for prompt shipment and, in one or two known instances, at that price over the remainder of the month. The sales manager at the Chicago office of a large Mid-Continent refiner stated he knew of at least one offer of 25 cars of U. S. Motor gasoline at 8¼ cents. Marketers have remonstrated with the refiners and have told them that right now it was not a question of price and that cutting prices did no good, would not increase sales under present conditions. The course to be followed is to hold back shipments and not increase the number of cars in transit. Every car on the tracks here or at the sidings of the local jobbers only makes it more difficult to hold the market. Once the cars are placed on the sidings and demurrage begins to run the party who is charged with the expense of holding the cars must sell to avoid additional losses.

Too Much Gasoline

Some refiners seem unwilling to understand the situation brought about by the heavy selling of the last week in May and the first day or two in June, combined with the slowing down of consumption due to the bad weather. There seems to be more gasoline than is wanted everywhere. Refiners evidently have more gasoline than they care to carry. Jobbers are very few who have not filled tanks and many have cars on their sidings and more to arrive shortly for which they have no room. Reports of gasoline stocks as of June 1, compiled by one of the major companies, show an increase as compared with May 1 and refinery runs were increased. The local comment on the situation is that if refiners do not want to cut their runs but decide to increase them instead, they should at least carry the surplus and not try to force the trade to absorb these additional amounts. In several instances the refiners have been so insistent on receiving shipping instructions that a strained feeling has resulted. So far as anyone here can see, there has been no one to blame, except the weather. The oil industry is often prone to be overly optimistic but in this case the buyers were justified by the results from past years and the early part of this year, in buying all that was bought. Weather conditions have not only been unusual all over the country but in this section they have been favorable to gasoline consumption when the time was not ripe and now that the season for a larger demand should be close at hand the use of the cars is greatly reduced by weather that makes driving for pleasure impossible.

Spot Market Dull

The spot market was extremely dull last week. It seemed impossible to interest jobbers in adding to their stocks. They have sufficient material to last them for a while. The takings on contract are good, the number of jobbers who are asking that deliveries be slightly deferred not being important nor more than usual. Refinery prices quoted by the major refiners were held at 9¼ cents all of last week. Marketers were trying to get as near to that price as they could, but under the conditions prevailing many of their orders were taken at 9 cents. Later in the week, there were quotations made to the trade of 8¾ cents and a little business done.

For resale U. S. Motor gasoline, full distillation, doctor and corrosion tests was quoted to several marketers here late in the week at 8¼ cents by responsible refiners of well-known quality gasoline to be taken out during June but most of the trade who owned any gasoline on previous purchases had it bought at higher prices and were more anxious to move their higher priced material although some bought a little on the plan of averaging their costs down to the present market. It is hard to see how the market can fail to respond to the advance of the season for the public generally seems to be planning more touring than ever before.

The demand for the antiknock gasolines is increasing and this may be responsible to some degree for the practice quite common at present with the large refiners with controlled distribution through exclusive agents, of supplying their trade with a better grade of gasoline. Several of the largest are now regularly shipping and agree to continue to supply the 60-62 400 endpoint grade on their contracts. Some of their competitors complain that this is really a way of cutting prices, furnishing a superior article at the same cost to the trade. Some of the new cars require a better grade of motor fuel than did the older cars to get the results wanted by their owners. The call for the grades above the 400 endpoint is not active. There are some jobbers who specialize on the 64-66 gravity and there are some who run on the 68-70 gravity. One jobber stated that since he began business he had never had a gallon of a lower gravity in his tanks. There is a limited demand for these higher tests but for the most part the motorist when at home buys from some convenient dealer whose gasoline is satisfactory and when touring he turns to some one of the advertised brands known to him.

East of Indiana

One of the features of the gasoline business during the early summer of last year was the demand from the states to the east of Indiana in this market. Some of the Pennsylvania oil companies turned to this market for material when they found supplies were scarce in their territory. This year there has been none of this buying from Pennsylvania so far as can be learned. On the other hand gasoline is being shipped from western Pennsylvania into eastern Michigan and to a lesser extent to other points on the eastern fringe of the Indiana territory. Occasionally the suggestion is heard that should the Mid-Continent market for gasoline advance materially above its present level the gasoline refined from Venezuelan or West Texas or even California crudes may find a market in the eastern parts of this territory. Right now the tendency of prices in Ohio and Pennsylvania is upward and the tank wagon price in these states has been advanced recently. But supplies of crude are very ample from the sources mentioned while the Mid-Continent oil buying organizations are drawing on stocks. Transportation of crude and its products in large quantities is so quick, easy and comparatively inexpensive that the excess of one section can be quickly relieved by a transfer to another part of the country or even, of the world, if the comparative price ranges make it profitable. The local and nearby refineries are working at nearly capacity and then capacity has been greatly increased during the past two years. On March 1 this year, Indiana, which is not considered as a refining state, had plants in operation with a crude capacity of 136,500 bbls. while Kansas which is regarded as a refining state had plants in operation with a capacity of 137,500 bbls. All of the Indiana plants are located in the Calumet district, at East Chicago, and Whiting. The natural gasoline market was quiet here last week. There was no local buying for export.

Kerosene Quiet

Kerosene has been quiet recently but fairly steady as to price. Refiners' quotations are generally 6 cents with others offering at 5¾ cents. There were some refiners in the market for kerosene last week who offered 5½ cents for the 41-43 oil but they found this price below the ideas of sellers here. The demand is not general but there is a fair amount of business for the season.

While refiners are not doing much if any business in distillates for immediate shipment, they report they have met with gratifying success in securing renewals of old and some additional contracts. This applies to both contracts with distributors and with consumers. In fact the outlook is for a decided increase in the consumption of the light burner oils such as distillates and zero gas oils. Manufacturers of oil burning equipment and particularly of domestic oil burners, state their sales are much larger than to this date last year. Contracts are being made with distributors by refiners and tank car dealers at "the market date of shipment."

Gas and Fuel Oils

Gas and fuel oils have run along with little change either in demand or prices. The business in gas oil is chiefly in the straightrun product and now is very largely on contract, spot buyers being few and not for material quantities. The Oklahoma product is not freely obtainable as there is some demand for cracking and some refiners are holding their oil although they have not begun to run their cracking plants. The Cosden refinery at Big Spring plans to have several of its cracking units in operation next month and is not offering gas oil at present. It has been a large seller. Some of the gas companies have been taking in West Texas gas oil partly on approval and some are using that product regularly. Zero gas oils are being held for winter fuel. The southern rice planters are in the market for gas oil for their irrigation plants drawing much of their supplies from Shreveport.

The fuel oils show little change. The industrial demand is large. A seasonable recession in the consumption of industrial fuel oils may be looked for. The higher gravity oils with low viscosity and a small sulphur content are strongly held. The supply is not large and is drawn on by the crackers and some special industries and any remaining will be held for next fall. Refiners are firm in their views as to the prices of these grades and are asking a little higher price on account of the higher crude costs. West Texas refiners have tried to advance their quotations but heavy fuel oil from these sources has been offered in this market at the former prices. A little more active demand might result in some advance in quotations but right now buyers have the advantage in the heavy fuel oils of free offerings from large stocks which refiners would like to be able to reduce more rapidly.

Motor Oils

The demand from jobbers for motor oils is light. Refiners are still shipping on contract but are asking higher prices for refined stocks. The Shell Corp. advanced the price of its motor oils to 30 cents a quart, an advance of 5 cents. The industrial demand has fallen off partly because of the approach of the semiannual inventory period, buyers holding purchasese to a workable minimum in many plants. The Buick Motor Car Co. has given out its requirements in the way of motor oils for its new car, the Marquette. It recommends for summer driving under ordinary conditions a heavy oil with the viscosity S.A.E. No. 30, or for long continued driving at high speeds No. 40. For winter driving it recommends S.A.E. No. 20 with a zero pour test down to temperatures of 10 degrees above zero and below that temperature an oil with a viscosity of S.A.E. No. 10 with a subzero pour test.

The Sinclair Refining Co. announced last week the purchase of a number of additional jobbing businesses in this State but also stated it was about through with its program for station buying.

Eastern Market Position Favorable

Broadening Movement in Gasoline. Lubricants and Wax Only Products Reported Showing Weakness

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, June 17.—Well stabilized markets and a broadening movement in gasoline have characterized trading in refined products in the East Coast area this week. With the exception of lubricating oils and waxes, both of which are showing weakness, the general market position is fairly sound and current business is holding at levels which more than compare favorably with last year at this time.

All of the principal factors in the tank car gasoline market are now up to 10 cents per gallon at refineries and terminals, and a good volume of business is being transacted at this level. The next development of general interest is expected to be in the tank wagon division.

Tank Car Gasoline

The market is now firmly established at 10 cents for U. S. Motor at local refinery terminals, Tide Water and Pan American having come up to this level during the week. There is some talk in market circles regarding the probability of this firming-up in the tank car position presaging an early increase in tank wagon markets in this territory.

Continued favorable weather has made for a heavy movement of gasoline into jobbing channels. A number of refiners have booked in a substantial way over the remainder of the current month at the 10 cent level, and heavy withdrawals against these contracts are looked for. With the general market stabilized at 10 cents, distributors in some sections of the East are finding it more profitable at the moment to operate against marginal contracts rather than in the open market.

California gasoline is featuring jobbing markets in ever-increasing volume, and it is evident thus early in the season that the Pacific Coast product will be a dominant factor in the East during the summer. Heavy shipments are being received almost daily by various factors here, and considerable tanker tonnage has been chartered to move California gasoline eastward to the Atlantic Coast during the entire summer and fall motoring season. In most instances, the California product is being marketed on a parity with Eastern gasoline, although in one or two instances sellers ask 10¼ to 10½ cents for the Pacific Coast motor fuel. Large quantities of this gasoline are being used in the premium fuels of leading Eastern refiners and marketers.

The relatively small advance in tank car markets in East Coast territory thus far in the season, in contrast with the strong upward movement at the Gulf, has tended to keep considerable quantities of Gulf gasoline off Eastern markets. At the present basis at the Gulf, it is impossible to land Southwestern gasoline at New York or Boston much under 10 cents, and thus there is not sufficient margin to work on to make the Texas product attractive to operators in this section. Considerable quantities of Texas gasoline are understood to be moving into Baltimore and markets further South against contracts booked earlier in the season, generally at prices considerably under prevailing levels.

A number of the leading Eastern refiners continue to book their premium motor fuels at a cent to 2 cents over the prevailing basis on U. S. Motor, and report well-sustained demand for the higher-priced product. In New York State, sales have fallen off a little on the premium product, due to the recently effective 2 cent per gallon tax on all gasoline sales, which has put the retail price of the premium grades up to 23 cents per gallon.

Tank Wagon Gasoline

Conflicting reports regarding the outlook in tank wagon gasoline markets continue. In some quarters it is contended the recent increase in tank car prices justifies a general upward move in the tank wagon basis. In others, the keener competition this year is given as a reason for holding prices at their present levels as long as possible. Another argument favoring a higher tank wagon schedule is that the present basis virtually bars any further increase in tank car quotations, which should be logical at this time, inasmuch as the destruction of the normal differential between the refinery price and the tank wagon basis would result in jobbers swinging over to marginal contracts, thus preventing refiners from obtaining the full spot price for their product. Higher crude costs are also cited as indicative of the need for higher tank wagon prices.

The situation is further complicated for refiners doing heavy gallonage in metropolitan New York by the fact that the quotation in this territory is still 1 cent over that for the remainder of the territory, despite the recent 1 cent advance in other sections of New York. This situation has given rise to reports that the market in New York City will not be revised until up-State quotations have been advanced another cent.

Insofar as demand is concerned the tank wagon market is in healthy position. Volume is large and gives every indication of establishing new high records. In view of the fact that there are more major factors operating throughout the territory, however, it will still be a race for gallonage, and refiners and marketers long established in this territory will be confronted with stiff competition in getting their normal share of the increased consumption.

There are some interests in the market who are distinctly bearish on gasoline, and who can see nothing but a bad midsummer break in the outlook. These latter point to the high rate of domestic gasoline production, the continued oversupply of crude, the heavier receipts of California gasoline and the probability of further increases in the movement of Pacific Coast gasoline here, the expected heavy production of the new Pan American refinery at Aruba, and the entry of Shell into the East, with its large reservoir of low-priced gasoline from Curacao. Undoubtedly, there are many strong arguments which can be mustered to support the "destructive" view of the market outlook and just as much may be said on the other side of the picture.

Competent market observers, however, are of the opinion that upon the success or failure of the industry's domestic conservation program will depend the movement of the gasoline market in East Coast territory this year. Certainly, the difficulties which this program have encountered have done little to build confidence in the outlook.

Kerosene

Refiners are reported making a seasonal cut in production of kerosene, but the market is still plentifully supplied. Water white in tank cars continues unchanged at 8 cents per gallon at principal East Coast refinery terminals, and is meeting with a moderate movement at that figure. It is probable the price could be shaded on a large "buy", refiners conceding the spot position is none too steady at the 8 cents level.

Consumption in the East is holding up fairly well, and the position of the market here is still being bolstered to some extent by a good export demand for both prime white and water white reaching refiners.

The 15 cents tank wagon quotation is almost a fixture, having been in effect for more than a year and a half past. This degree of stability is something unusual, even for kerosene, and refiners and marketers seem to be adhering to the old adage of "letting well enough alone." The demand in tank wagon markets, in fact, is said to be running somewhat in excess of that normally experienced at this season.

Diesel Oil

Marine consumption continues the feature of the Diesel oil market which is steady on the basis of $2 per barrel, bulk, at refineries, with one interest still quoting $2.10 at terminals. Production and consumption are nicely balanced, and refiners report there is little accumulation of surplus stocks on Diesel in this territory. Industrial consumption continues to expand slowly, with interest in this direction still centered on the outlook for greater utilization of Diesel oil for aircraft engine fuel.

The arrival of some newly-constructed or converted Diesel-burning vessels in the local harbor is more or less a weekly occurrence. While the greater number of these boats are small-vessel tonnage, in the aggregate they go to make up an impressive total, and give an indication of the potential demand for Diesel oil for marine fuel within the next several years. A number of large passenger liners, of 30,000 tons and over, designed for Diesel-electric drive, are now under construction in this country and abroad, while practically all of the current yacht construction is designed to utilize Diesel power.

Lubs

Cylinder stocks remain in extremely unsettled position. While no further price declines have materialized since the reductions of the previous week, the market is far from strong at current levels, and it is reported locally prices quoted could be shaded from 1 to 2 cents on a firm bid. Bright stocks in particular appear to have gone into a slump. Compounders have slackened off their operations in the spot market, and contract withdrawals have also shown some falling off. Operators expect the market to stabilize itself at a few cents under currently quoted levels, and are holding off operations as much as possible until this stability has been effected.

Red and pale oils were moving in better volume this week, refiners reporting greater activity in tank car movement at East Coast terminals. A steady undertone is maintained, with prices firm at quoted levels.

Petrolatum

Manufacturing consumers in the pharmaceutical trade have been buying in slightly better volume, and a good demand for snow white is reported, with the market firm at 8½ cents per gallon in barrels, car lots, at Bayonne. Lily white is also selling in a larger way, at 7½ cents per pound. The amber grades have felt the stimulus of this improved buying, and the market is quite steady at 3½ cents for amber and a quarter cent more for extra amber. Dark green is quiet and unchanged at 2 cents per pound.

Industrial demand for the lower grades is showing seasonal expansion, and sellers look for a well-sustained demand over the summer months.

Fuel Oil

Trading in bunker "C" is holding up well and the market is unchanged at $1.05 per barrel, in bulk, f.o.b. refinery terminals, and $1.10 barged alongside within the harbor limits. Notwithstanding the steadily increasing output of crude, refiners have been successful in maintaining fuel oil at the $1.05 level for more than six months.

Most of the current volume is against standing contracts with the large steamship companies, withdrawals on these contracts showing the usual seasonal expansion as the summer cruise season develops.

Gas Oil

The leading seller continues to quote 5½ cents for 32-36 recycled gas oil, but other sellers are offering in fair volume at a half cent under this figure. While the large artificial gas companies have curtailed their operations a little, customary during the summer months, volume is still running into substantial totals.

There is a good call for straightrun gas oil reported, with practically none available in the open market. Offerings are generally quickly taken, at a premium over the open market quotation, by refiners who require additional supplies of gas oil for cracking operations during the summer season.

Paraffin Wax

The market is still in somewhat unsettled position, and is rather easy in spots. On 125-127 a.m.p. refined the market is an eighth cent lower at 4⅛ cents per pound, and business on 135-137 a.m.p. is reported to have been done at 6⅝ cents, although sellers are still quoting the market at 6½ cents per pound on spot.

Scale is easy, with 122-124 a.m.p. reported to have sold down to 2⅝ cents per pound, although the general asking price is an eighth to a quarter over that figure.

Domestic demand is mainly for small lots for prompt shipments, and export buying is also lacking in volume.

Export Markets

Inquiry for export gasoline has livened up considerably and operators expect a more active market. France has come into the market with inquiries for three cargoes, consisting of one cargo of 3,600 tons of 64-66, one 6,400 ton cargo of 64-66, and one 6,000 ton cargo, half Navy and half 64-66. None of this business had been reported closed. Talk of a higher market on export gasoline persists, but thus far none of the large factors have taken any action.

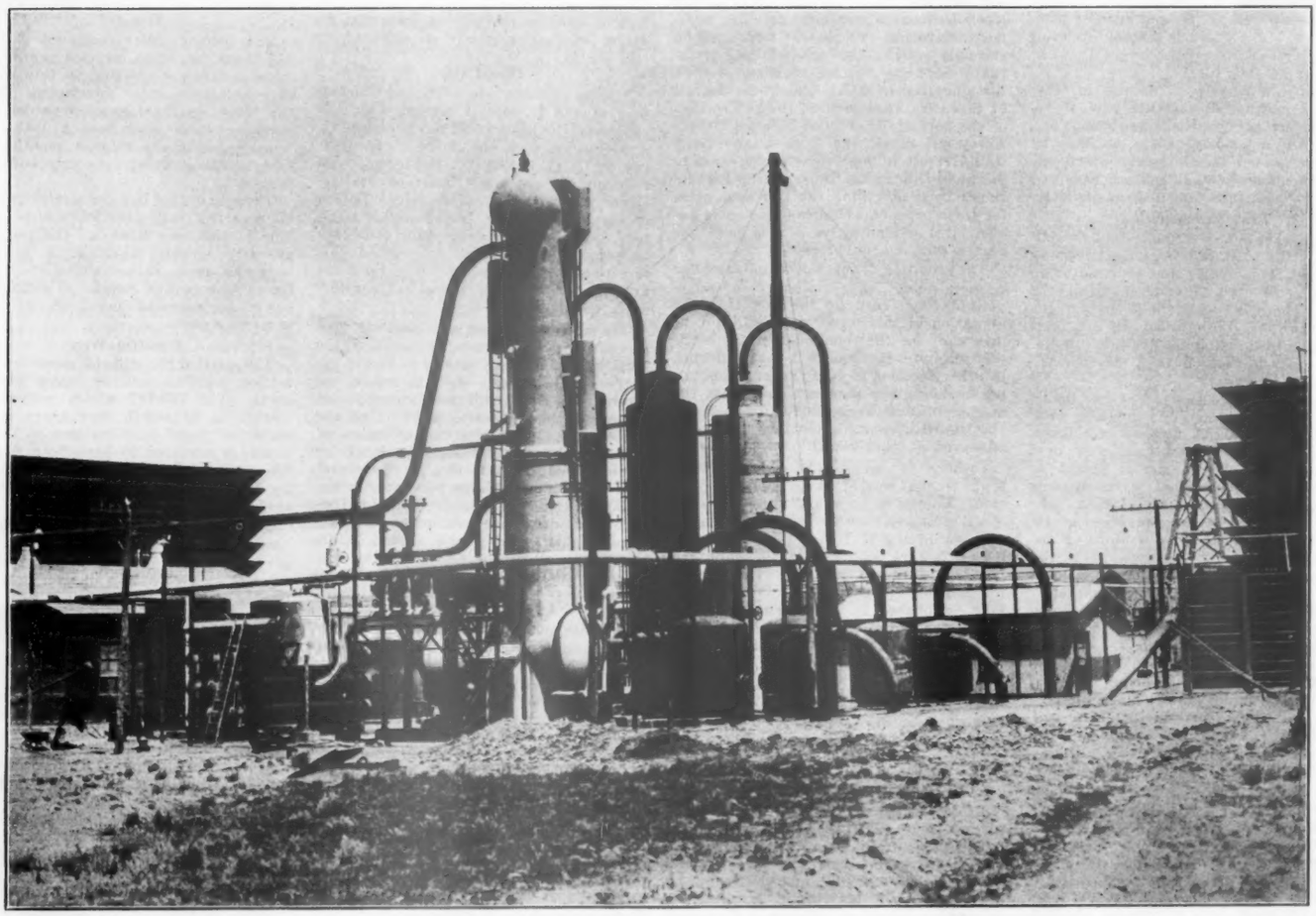
Sales of kerosene for shipment abroad are still running into heavy totals, and the market appears well maintained. Both prime white and water white are moving in good volume out of Atlantic and Gulf ports, and considerable inquiry for July shipment illuminating oil is heard. Quotation continues withdrawn on cased kerosene, but refiners are understood to be doing a good volume in the tinned product.

Routine inquiry for lub oils for export is still in evidence, due to the unsettled position of cylinder stocks. Refiners are reported as more willing to book business for prompt and nearby shipments at concessions, but buyers' price views are so radically under the present market basis that refiners and distributors have not yet been able to get together and establish a trading level.

Considerable export demand for fuel and gas oil has developed from the Scandinavian countries, and while this business is still of rather small volume, it is materially larger. During the past week, a shipment of close to 200,000 gallons of gas oil left here for Bergen, with the

(Continued on Page 149)

Ownership of an ERECO Absorption Plant is Evidence of Efficient Operation



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Natural Gasoline Manufacture

Phillips To Build Storage at Houston To Handle Exports

HOUSTON, Tex., June 18.—The Phillips Petroleum Co. has completed plans for the erection of tankage and auxiliary equipment at Houston, Tex., as a shipping point for natural gasoline and its products. During the past year, the company has been actively engaged in building up an export outlet for its superstabilized natural gasoline as a motor fuel and has shipped several cargoes of this material to European markets. The capacity and exact location of the terminal have not been announced but work on the project is expected to begin at an early date.

SKELLY INSTALLS ONLY COMPRESSORS AT ASHER

The Skelly Oil Co. is installing two compression units in its Asher, Okla., plant and will add the absorption units pending the development of the field. Shortly after the first wells were completed in this field it appeared that ample gas would be available to supply a 10,000-gallon plant. Since then several well failures and the declining production of gas has called for further consideration in the original plans of the Skelly Oil Co.

PUSH LIQUEFIED GAS SALES DURING SUMMER

During the vacation season the Mid-Continent companies manufacturing liquefied gases for household use expect a substantial increase in the consumption of their products this year and are covering the northern states with educational campaigns. Demonstrations are held in the outlying districts, particularly in summer resort points, showing the convenience in the use of such a fuel over the kerosene stoves or the wood and coal fires generally used. The Skelly Oil Co. has insituted a program of demonstrations during June and July termed the "Now you can cook with real natural gas" campaign for the sale of Skelgas. The Phillips Petroleum Co. is rapidly expanding its marketing facilities throughout these states and is establishing key points for the distribution of the Philfuels products.

PHILLIPS TO BUILD CARBON BLACK PLANT

AUSTIN, Tex., June 14.—The Texas Railroad Commission has under advisement an application of the Phillips Petroleum Co. for a permit to use 40,000,000 feet of residue natural gas in Gray County for the manufacture of carbon black.

Adjacent to the proposed carbon black plant the company is constructing a casinghead gasoline plant with daily capacity of 10,000,000 feet of natural gas from which 20,000 gallons of gasoline will be extracted. The company is also constructing three other similar plants in Gray County, with daily capacity of 85,000,000 feet of natural gas.

TEXAS CO. ADDS TO CALIFORNIA PLANT

The Texas Company has added six units to its Kettleman Hills plant in Kings County, California, bringing its capacity up to 125,000,000 feet of gas per day. The enlarged plant is expected to be in operation during the first week of July. Gas supplied from the new Milham gasser, No. 1 Elliott, occasioned the enlargement of the plant.

MOLECULAR WEIGHT DETERMINATION BY USE OF FREEZING POINT METHOD

In the more specialized work of natural gasoline plant practices and in their design, use is some times made of data involving the molecular weight of certain mixed hydrocarbons and a standard procedure used has been discussed by W. W. Robinson, Jr., as outlined by A. J. Oakey, each of The Texas Company of California.

The Beckmann apparatus (Figure 2) consists of an inner vessel, called the freezing point tube, in which a thermometer and agitator are placed, containing an isolated mass of liquid to be frozen. This is surrounded by another tube forming an air jacket, (called the air jacket tube) which in turn is surrounded by the freezing mixture.

Setting the Beckmann Thermometer—Manipulate the Beckmann thermometer so that the mercury column joins the mercury in the reservoir. Immerse the bulb and 2 or 3 inches of the stem in cracked ice and water (32 degrees Fahrenheit) and leave until the mercury in the reservoir has reached lowest or constant point.

Remove the thermometer from the freezing mixture, invert, and, while holding in a vertical position, jar the instrument by striking the hand holding the instrument sharply from below. This will break the mercury column at the tip of the capillary. Manipulate so that the excess mercury goes over into the other side of the mercury trap, away from the capillary tip. Squeeze out 20 drops of mercury from the capillary tip by warming the bulb of the thermometer with the palm of the hand.

Immerse the tip of the thermometer again in ice water. The mercury will come to rest at some position in the main scale. Note the reading (6.25 degrees Centigrade). Remove the thermometer from the ice water. One drop of mercury squeezed out of the capillary will lower the temperature reading on the main scale about 0.59 degrees Centigrade.

Since the melting point of benzene is 5.4 degrees Centigrade, and we want the mercury column to be at the top of the Beckmann scale at this temperature, and as it is now at the top of the scale (6.25 degrees) at (0 degree Centigrade or 32 degrees Fahrenheit) we must squeeze out as many drops as 5.4 degrees divided by 0.59 degree will require, or 9 drops.

Again immerse the thermometer in ice water, and take the constant reading. If this reading, plus 5.4 degrees, does not go above the top of the scale, and is within

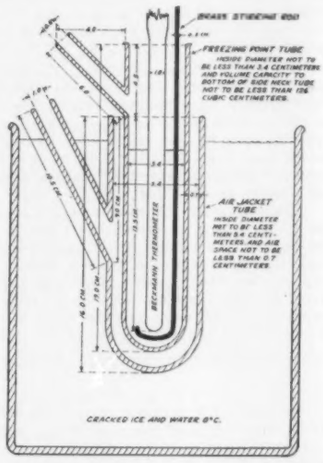


Figure 1—Molecular weight freezing point apparatus.

1 degree of the top of the scale, the instrument is ready for use.

The thermometer is now placed in the freezing point tube. It is held in the proper position by the cork through which it is inserted. The thermometer should be in the center of the freezing point tube and the tip within 1 centimeter of the bottom. The freezing point tube is next placed in the air jacket tube, which is surrounded by the freezing mixture.

The temperature of the medium in which the thermometer is kept after setting must not be more than 10 to 15 degrees Centigrade or the mercury in the main stem will overflow the capillary. This would change the setting of the thermometer and ruin the attempts to obtain the lowering of the freezing point of benzene by the addition of a solute.

Preparation of Solvent and Solute

Benzene is used as the solvent. Into a clean and dry 500-c.c. glass-stoppered volumetric flask, pour enough of the solvent (300 c.c.) for several determinations. Place the flask in a pail of ice water, shake occasionally to insure a constant temperature throughout, (5.4 degrees Centigrade or 41.72 degrees Fahrenheit). Do not leave the flask in the ice water until all the benzene freezes. Take the specific gravity at the same temperature at which the sample is pipetted.

The method of introducing the solute into the solvent depends upon its viscosity. Viscosity increases with an increase of molecular weight. Therefore, samples are introduced in one of the following methods.

First, for samples with low viscosity, shake thoroughly and pour into a clear, dry, 50-c.c. glass-stoppered graduate. Cool to 0 degree Centigrade (32 degrees Fahrenheit) before introducing solute by a pipette into the solvent. Take the specific

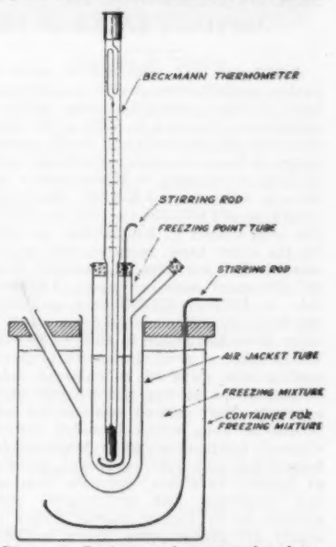


Figure 2—Beckmann Apparatus for determination of molecular weights.

gravity of the solute at the same temperature as that at which the sample is pipetted.

Second, samples which are too viscous to pipette at 0 degree Centigrade, and which flow well at 100 degrees Fahrenheit, may be pipetted at this temperature and the specific gravity taken at the same temperature.

Third, samples which cannot be pipetted are weighed in a beaker (approximately 1 gram). Then the 100 c.c. of cold benzene is added and gently stirred to insure complete solution. The sample is then carefully poured into the freezing point tube.

Freezing Point Depression

Rinse out a 100-c.c. pipette with the cooled sample of benzene, and still further chill the pipette by drawing up the sample several times and letting it drain back. Then pipette 100 c.c. of the sample into the side arm of the freezing point tube.

Remove the freezing point tube and immerse in ice water (0 degree Centigrade) slightly above the level of the benzene. By means of the brass rod, keep the benzene agitated. Chill the benzene to a degree or so below its freezing point. Remove the freezing point tube from the ice water, dry hurriedly, and insert into the air jacket tube. Connect the agitating rod to the mechanical stirrer, and set in mo-

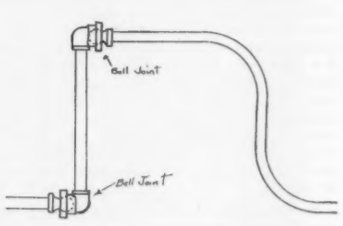
(Continued on Page 156)

A PRACTICAL SUGGESTION

EXPANSION JOINTS

There are several methods of taking care of the linear expansion of metal in gasoline plant equipment and pipe connections. Floating heads are used in some types of brass tube heat exchangers, other methods consist of using a stuffing box, expansion sleeve, and a half or full swing by using ells and tees. The change in length due to a change in temature is in general slight but must be taken into consideration. A pipe line 100 feet long when heated from 32 degrees Fahrenheit to 212 degrees Fahrenheit will expand only about 1½ inches.

The method suggested here consists of the use of two flexible ball or swivel joints as is shown in sketch. The length of the nipple between the joints governs



Expansion Joint

the extent of the movement intermittent vibration and sometimes prevents breaks and leakage. It is surprising how many applications can be made of ball and swivel joints, especially for temporary connections and still they are rarely used. The latest designed joint carries two gaskets that are soft enough to furnish good seats for the ball and still durable enough to stand fairly rough use without repairs.

Practical suggestions by those connected with the construction and operation of natural gasoline plants are invited. Payment will be made as soon as suggestions are accepted. Address all communications to the Natural Gasoline Department, The Oil and Gas Journal, Tulsa.

Brief Items for Petroleum Refiners

Start Construction Of Michigan Central Refining Co. Plant

J. D. Wrather has broken ground for the erection of his 3,000-bbl. Muskegon plant. This will be built very similiar to the Del Rio Refining Co.'s plant at Del Rio, Tex., the most recent of the three plants built and operated by Mr. Wrather. Construction is expected to be completed by August 1 when the plant is scheduled to start operations. It will be operated as the Michigan Central Refining Co. A contract for more than 2,000 bbls. of crude daily has been made and an outlet for the products, including gasoline, kerosene, distillate, gas oil and fuel oil has been secured. It will be constructed and operated under the supervision of John Wrather, son of J. D. Wrather.

SLIGHT DECREASE IN ASPHALT SALES IN 1928

A 6.2 per cent reduction in sales of paving asphalt, due chiefly to increased sales of other paving materials, led to a 2.3 per cent decrease in 1928 in the total sales of solid, semisolid and liquid asphalt prepared from petroleum. Statistics compiled by the Bureau of Mines show a decline in sales from 3,654,340 short tons valued at $51,661,570 in 1927 to 3,572,274 tons valued at $46,268,546 in 1928. On the other hand, sales of road oil increased 45.8 per cent in quantity from 297,110 short tons, or about 1,818,300 bbls., in 1927 to 433,255 tons, or 2,651,500 bbls., in 1928, and 22.8 per cent in value, from $3,129,520 in 1927 to $3,844,439 in 1928. A good market for prepared roofing was reflected in enlarged sales of asphalt for roofing and waterproofing purposes. More asphalt was sold for miscellaneous uses, which included battery sealing compounds and binders for briquetting and other purposes, as well as paints, varnishes, enamels, coatings and insulating and preservative compounds as in former years. Prices of nearly all grades were lower in 1928 than in 1927. The average sales value per ton of all asphaltic products, including road oil, fell from $13.87 in 1927 to $12.50 in 1928.

Production Lower

For the first time since 1921, refinery production of asphalt manufactured from petroleum decreased, from 3,817,539 short tons in 1927 to 3,542,941 tons in 1928. Substantial gains in the production of asphalt in the refineries of the Middle West and of California did not suffice to offset the lowered production of the Atlantic Coast and Gulf Coast refineries, which furnished 69.2 per cent of the national output.

Of the total refinery production in 1928, 2,156,172 short tons, or 60.9 per cent, was manufactured from crude oil imported from Venezuela, Mexico and Colombia. Nearly 93 per cent of the asphalt manufactured in the East Coast refineries, and over 76 per cent of the asphalt manufactured in the Gulf Coast refineries of Louisiana and Texas was derived from foreign petroleum.

Imports of natural asphalt, nearly all from Venezuela and Trinidad, decreased from 158,097 short tons, valued at $1,140,425, in 1927 to 119,588 tons, valued at $845,046 in 1928. Exports of petroleum asphalt have grown rapidly in the four years for which statistics are available, from 89,014 short tone in 1925 to 146,589 tons in 1926, 385,031 tons in 1927, and 492,362 tons in 1928. Although the foreign sales of petroleum asphalt in 1928 were 27.9 per cent larger than in 1927, more than 47 per cent of the 1928 exports was shipped out during the first four months, and fully 66 per cent during the first six months of the year.

Distribution of Exports

More than half of the 1928 exports went to northern and western Europe, chiefly to Germany, the Netherlands, the United Kingdom, France, Denmark and Belgium; and over one-fifth to Far Eastern countries, chiefly to Australia, the Netherland East Indies, Japan, China and New Zealand.

Domestic consumption of petroleum asphalt dropped from 3,563,105 short tons in 1927 to 3,155,467 tons in 1928, or to a little less than the consumption in 1926. Three-fourths of the total was consumed east of the Mississippi River. About 8 per cent was consumed in the Southwestern States, chiefly in Texas, Louisiana, Missouri and Kansas, and about 6 per cent in California, Washington and Oregon.

Paving Large Consumer

Paving required 46.9 per cent of all solid, semisolid and liquid asphalts sold, or 52.7 per cent of all bituminous products of petroleum, including road oil. For the first time since 1921, sales of solid and semisolid asphalt for paving decreased, from 1,652,100 short tons, valued at $25,177,360 in 1927, to 1,549,354 tons, valued at $21,271,309, in 1928, or 6.2 per cent in quantity and 15.5 per cent in value. Similarly, sales of paving flux, of less than 200 penetration, diminished from 229,800 short tons, valued at $3,550,240 in 1927 to 127,177 tons, valued at $2,144,663, or 44.7 per cent in quantity, but only 39.6 per cent in value.

Sales of solid and semisolid asphalt for roofing and waterproofing continued the upward trend which they have manifested since 1921. They increased 25.8 per cent in quantity, from 1,018,650 short tons in 1927 to 1,281,942 tons in 1928, and 13.7 per cent in value, from $13,879,230 in 1927, to $15,816,695 in 1928. On the other hand, sales of roofing and waterproofing flux fell from 283,910 short tons in 1927, valued at $3,550,240, to 266,936 tons in 1928, valued at $3,027,321. This represents a drop of 5.98 per cent in quantity and of 14.7 per cent in value.

PHILLIPS PETROLEUM CO. TO BUILD 5,000-BBL. COMPLETE REFINERY

The Phillips Petroleum Co. will build a 5,000-bbl. complete refinery in Wichita, Kans., in the near future and if arrangements are not made whereby crude produced in the Elbing and Peabody Pools, near El Dorado, may be brought to the refinery through existing lines, the company will build their own line. Details of the construction of the plant have not been announced but in general call for a topping plant, cracking units and a lub plant.

The company's production in the pools named will supply the plant with crude. The gravity approximates 34 and permits a yield of gasoline on skimming of approximately 33 per cent. The cracking operation will materially increase this and the output of gasoline from the plant will likely exceed 2,500 bbls. per day.

Approximately 82 acres of ground has been purchased on which the plant will be erected, the ground being located near the Barnsdall and the Golden Rule refineries on the Wichita Terminal Railroad Lines. Construction is expected to start within 30 days and the plant is to be completed before the close of the year. It will be designed to permit the addition of units as it becomes desirable to increase the capacity of the plant.

This will be the second refinery to be operated by the Phillips Petroleum Co., originally a company manufacturing natural gasoline exclusively. The first plant was built in the Panhandle Field of West Texas by the Alamo Refining Co. and this was sold to the Phillips company. It has been consistently added to and more recently a pipe still was added, bringing the capacity of the plant up to 10,000 bbls. daily. Within the past month, a cracking unit has been added also.

Through the establishment of the Wichita plant, the company will be able to utilize its Kansas production and better serve the consuming markets in the north central states. Over the past year many stations have been built and purchased by the company in the states of Oklahoma, Kansas, Missouri, Iowa, Nebraska and Minnesota with approximately 200 more stations to be built over the coming year in a program of expansion commensurate with its refinery expansion program.

NATIONAL OIL SHOW EXHIBIT

CHICAGO, June 15.—At the meeting of the directors of the National Oil Show, Inc., it was decided to hold the first annual exhibition at the Sherman House, Chicago, in January, 1930, beginning January 19 and continuing to January 25 inclusive. A vote was taken both by mail and in person on the suggestion to hold the exhibit of oil equipment in connection with the International Petroleum Exposition to be held in Tulsa, on October 5 to 12. The vote was strongly in favor of holding the National Oil Show exhibit in Chicago. At the same meeting of the directors July 1 was set as the date after which applications to join the organization as charter members could no longer be received. All charter members will have perpetual first choice of exhibit spaces. Manley H. Simmons of the Enameled Steel Sign Co., was made chairman of the membership committee. Additional by-laws were adopted and committees appointed at the meeting and a brief suggestive exhibition program was adopted which will be of a tentative nature.

"RED HAT" DESIGNS COPYRIGHT

The Independent Oil Men of America announces that the "Red Hat" designs for use with the gasoline and motor oils sold by the members have been examined and approved and will be published in the Patent Office Gazette on July 2. The words "Red Hat" were approved and published in the Gazette of June 11. The secretary of the I.O.M.A. states that these "designs" with the words "Red Hat" constitute the trade mark. Certificate of registration is delayed for 30 days after publication in the official Gazette to give opportunity for any one who is opposed to the granting of the registration to file objections. If no objections are filed within 30 days the patent office may issue an official notice of registration.

NEW OIL AND EQUIPMENT CO.

CHICAGO, June 15.—The Illinois Oil Co. has been organized with a capital stock of $25,000 to deal in oils, greases, pumps, tanks, storage equipment, etc. The organizers are W. E. Moore, Harry E. L. Timm and Harry W. Lynch. The address is 9901 Ewing Avenue, Chicago.

CITIES SERVICE CO. BUYS OHIO STATIONS

Effective July 1 Cities Service Oil Co. will take over and operate the retail distribution facilities of the Louisiana Oil Refining Corp. in Ohio.

This transaction, bringing to Cities Service approximately 135 bulk and service stations and hundreds of dealers, will give the company distribution in virtually all southern Ohio cities of any importance.

The acquisition of this extensive group of retail outlets is the most recent of a series of purchases made in the past few months by Cities Service throughout the Middle West. The Ohio stations, together with the company's present distributing system in that territory, will market the output of the new refinery now being built at East Chicago, Ind., by the Empire Oil & Refining Co., a subsidiary of Cities Service. The new refinery is to be supplied from the Mid-Continent Field by a 12-inch pipe line which is being built jointly by The Texas Company and Cities Service interests.

The record of Cities Service new activities in Ohio during the past three months, indicative of the strong drive to be made in that territory, discloses that distribution systems have been also acquired in Akron and Youngstown, as well as the important Cleveland territory. Toledo was entered during the latter part of 1928 through the purchase of retail stations in and about that city. With this purchase the total number of Cities Service stations approximates 1,500.

GRAYBURG TO MOVE PLANT

SAN ANTONIO, Tex., June 15.—Grayburg Oil Co. has approved the ground plan for its new refinery, to be erected just south of the city of San Antonio. Representatives of three cracking processes have recently been in San Antonio in conferences with officers of the company. Understanding is that the contract will be let some time within two or three months for the refinery and the plant will be built and in operation by the summer of 1930. Grayburg Oil Co. is now running approximately 3,300 bbls. of crude oil daily through its refinery on Roosevelt Avenue in San Antonio. Due to lack of ground room for storage and shipping facilities this is about the capacity the Grayburg will run until the new plant is erected. The new plant will, ultimately, be several times the size of the Roosevelt Avenue plant.

NORTHWEST DEALERS

CHICAGO, June 15.—The Minnesota Petroleum Association and the North Dakota Petroleum Association will be joined in one organization on July 1, the style of the new association to be the "Northwest Petroleum Association." The membership will include dealers in Minnesota, North and South Dakota and Wisconsin. All the activities of the various state organizations will be continued and in addition it is planned to begin issuing a road map service.

DISPLAYING COSDEN SIGNS

CHICAGO, June 15.—The United Petroleum Co. and the Wells Petroleum Co., distributors of Cosden gasoline in Chicago as well as the Westwood Oil Co., which is owned by the Cosden interests are rapidly installing "Cosden Gasoline" globes and signs. These three distributing organizations are estimated to have a gallonage of upwards of 17,000,000 gallons annually at present.

POSITION OF EASTERN MARKET IS FAVORABLE

(Continued from Page 145)

same vessel carrying a shipment of over 550,000 gallons of fuel oil.

Market conditions on other refined products continue unchanged this week, so far as export trading is concerned.

Petroleum Exports

The following table shows principal exports of petroleum and refined petroleum products from New York during the past three weeks (all figures in gallons unless otherwise noted):

	Week Ended		
	June 8	June 1	May 25
Gasoline	894,000	374,000	213,500
Naphtha	842,000	962,500	857,600
Kerosene	403,000	37,000	60,000
Fuel oil	783,000	20,000	28,000
Lub. oil	900,000	1,782,400	2,215,500
Pet. ref.	1,697,000	1,742,200	2,933,000
	Pounds		
Petrolatum	10,000	.....	29,000
Paraffin wax	423,000	982,000	1,835,200
Refined	314,000	.....	.....
Scale	314,000	167,300	283,000
Lub. greases	495,000	1,763,800	1,442,800

Export movement of lub oil has been curtailed appreciably by the recent price advances on cylinder stocks, and export volume is not expected to show any material increase until further price readjustments have been made. Gasoline exports have picked up and kerosene is also moving into foreign channels through the local market in greater volume. Low prices have stimulated export inquiry for gas and fuel oils to some extent. Great Britain and France continue leaders in the ranks of foreign buyers, with considerable quantities of gasoline and lubricating oils moving to South America, and some to South Africa. Germany is reported a fair buyer of paraffin wax, with considerable quantities of this product also moving to Far Eastern markets.

Imports

Imports of crude and refined oils at the principal United States ports for the week ended June 8 totaled 1,913,000 barrels, a daily average of 273,285 barrels, compared with 1,740,000 barrels, a daily average of 248,571 barrels for the previous week and a daily average of 295,321 bbls. for the four weeks ended June 8. Details follow:

	Bbls. of 42 Gls
At Atlantic Coast Ports—	
Baltimore	320,000
New York	701,000
Philadelphia	502,000
Others	91,000
Total	1,614,000
Daily average	230,571
At Gulf Coast Ports	143,000
Galveston District	48,000
New Orleans & Baton Rouge	102,000
Port Arthur & Sabine District	6,000
Tampa	299,000
Total	42,714
Daily average at all United States ports—	
Total	1,913,000
Daily average	273,285
Daily average four weeks	295,321

California Oil Receipts

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended June 8 totaled 257,000 bbls., a daily average of 36,714 bbls. compared with 347,000 bbls., a daily average of 49,571 bbls. for the previous week and a daily average of 58,929 bbls. for the four weeks ended June 8. Details follow:

	Bbls. of 42 Gls.
At Atlantic Coast Ports—	
Baltimore	96,000
New York	161,000
Total	257,000
Daily average	36,714
Daily average four weeks	58,929

There were no receipts of California oils at Gulf ports during the week.

Distribution of total California oil receipts is as follows:

Crude	96,000
Gasoline	161,000

REVISE U. S. MOTOR; ADD NEW GRADE

(Continued from Page 141)

quirement shall be lowered 3 degrees Centigrade (5.4 degrees Fahrenheit).

When 50 per cent has been recovered in the receiver, the thermometer shall not read more than 125 degrees Centigrade (257 degrees Fahrenheit).

When 90 per cent has been recovered in the receiver, the thermometer shall not read more than 180 degrees Centigrade (356 degrees Fahrenheit).

The endpoint shall not be higher than 205 degrees Centigrade (401 degrees Fahrenheit).

At least 95 per cent shall be recovered as distillate in the receiver from the distillation.

6. Sulphur—Method 520.11. Sulphur shall not exceed 0.10 per cent.

7. All tests shall be made according to the methods of testing contained in Part 2 of United States Government Master Specification No. 2d, for Lubricants and Liquid Fuels (Bureau of Mines Technical Paper 323B), or latest revision thereof.

The technical requirements of these specifications become mandatory for all departments and independent establishments of the Government not later than September 11, 1929. They may be put into effect, however, at any earlier date, after promulgation.

In general, the revisions in the U. S. Motor specifications do not work a hardship on refiners since the greater share of the U. S. Motor grade of gasoline being made at present will pass the new specifications. There is some concern, however, regarding the freedom allowed in the 10 per cent specification. Whereas, the basic specification requires 10 per cent be recovered between 122 and 176 degrees Fahrenheit the commanding officer may specify the 10 per cent minimum be 140 degrees Fahrenheit in those cases where the material is to be stored in the tropics. Similarly, the commanding officer has the right to reduce the maximum 10 per cent specification 9 or 18 degrees and instead of the 176 degrees Fahrenheit may demand 167 degrees Fahrenheit or 158 degrees Fahrenheit. With these possible differences in the grades to be purchased by the Government and the possibility the respective states will not adopt the new specifications as they are written, places refiners in a position where they may have to increase the number of grades of gasoline offered or sacrifice some of their yield.

In the new Motor Fuel V specifications the Government has intended to include all specifications that will guarantee quick starting and ultradependable service at all times in special needs such as fire trucks, ambulances, etc., and such a grade will of course cost more to manufacture and its price will be correspondingly higher. This in turn does not mean to infer the great bulk of the gasoline being offered on the open market as U. S. Motor gasoline is not suitable for these uses but the new set of specifications was adopted to guarantee fully satisfactory operation of the motors in these special cases and at the same time not penalize the average motorist with its additional cost of manufacture where the regular U. S. Motor grade was entirely satisfactory. Copies of the specifications may be secured from the Federal Specification Board, in care of the Bureau of Standards in Washington, D. C.

TWO NEW DIRECTORS ANNOUNCED BY SOCONY

Herbert L. Pratt, chairman of the board of directors of the Standard Oil Co. of New York, recently announced the election to the board of Frederic Ewing and Richard Parran Tinsley.

Mr. Ewing joined the Socony organization in October, 1928, and is already well known to most of the domestic selling organizations. Before coming to Socony, Mr. Ewing was for 14 years with the Pan American Petroleum & Transport Co. of New York. Starting with this company as a salesman in 1914 he was successively chief engineer, general sales manager, director and vice president. He resigned to join Socony. Texas claims Mr. Ewing as her son, for he was born at San Angelo in 1884. In 1906 he graduated from Yale University with a degree in mining engineering. He followed his profession until 1912, being employed by Guggenheim and John Hays Hammond. Then for two years he was a salesman for the Inter Ocean Oil Co. of New York, and left to join Pan American Petroleum & Transport Co.

Frederic Ewing

Mr. Tinsley joined the Standard Oil Co. in the Baltimore division in 1892, and in November, 1898, was transferred to 26 Broadway as accountant for domestic trade. In 1904 he became vice president of Waters-Pierce Oil Co., St. Louis. The following year he left there to become traveling representative in Standard Oil Co.'s foreign trade. In 1908 Mr. Tinsley was appointed assistant comptroller of the Standard Oil Co. of New Jersey, and since the segregation decree of 1911 has been treasurer of the Standard Oil Co. of New York except during the period of 1915 to 1921, when he was engaged as vice president of American International Corp.

Richard P. Tinsley

Born at "Lansdowne," near Yorktown, Va., Mr. Tinsley attended school in Baltimore and later New York University. He is a member of India House, the Broad Street Club and the "Virginians." Mr. Tinsley lives in New York City.

FIRE LOSS COMPARATIVELY SMALL

—Photo by Underwood and Underwood.

View of the most recent fire in the Santa Fe Springs Field in California.

INDEPENDENTS FORM A NEW OIL ASSOCIATION

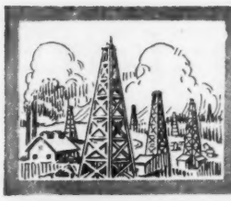
An organization of independent oil men formed at Colorado Springs last week is called the Independent Petroleum Association of America. Headquarters of the new organization will be in Tulsa. Wirt Franklin of Ardmore, Okla., was elected president; H. B. Fell of Ardmore, executive vice president; Miss Margie Montgomery, Amarillo, Tex.; E. G. Bedford, Midland, Tex.; W. Scott Heywood, Jennings, La.; R. D. Pine, Okmulgee, Okla.; H. C. Conley, Green River, Utah; J. W. Olvey, El Dorado, Ark.; Dr. A. W. Green, Denver, and A. J. Dousmann, Baker, Mont., vice presidents.

Classes of membership will include the following, all members to be independents, that is, not having any affiliation whatever with any of the Standard Oil Co. groups: Producers, refiners, land owners, royalty owners, permit holders, supply men, drilling contractors and intrastate pipe liners.

An executive committee consisting of Mr. Franklin, Wade James and R. D. Pine was named. The new association will devote its initial efforts to procuring a tariff on crude oil imports into this country and to obtaining a modification or abandonment of the order of the Secretary of the Interior in cancelling permits to develop public lands.

ANNUAL OUTING

CHICAGO, June 15.—The fourth annual outing of the Spencer Petroleum Co. takes place on June 20 at the Medinah Country Club. These annual outings of the Spencer Petroleum Co. have become an established and welcomed event.



REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

	June 18		June 11		June 4	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.08¾		.08¾		.08½	.08¾
56-58 450 endpoint	.08¾		.08¾		.08½	.08¾
58-60 450 endpoint	.08¾	.09	.08¾	.08⅞	.08⅝	.08¾
*58-60 437 endpoint (U. S. Motor)	.0925		.0924		.0925	
*60-62 437 endpoint	.0938		.0929		.0938	
*60-62 400 endpoint	.0950		.0950		.0969	
*64-66 375 endpoint	.0975		.0983		.0975	
68-70 360 endpoint	.09¾	.10	.09¾	.10	.09½	.10
64-66 437 endpoint (blend)	.09	.09¼	.09¼	.09¼	.08½	.08¾

*Weighted average prices June 17, 10 and 3, as reported by representative refiners. Sales to jobbers only.

NORTH TEXAS—						
56-58 450 endpoint	.08¾	.08¾	.08¾	.08¾	.08½	.08¾
58-60 450 endpoint	.08½	.08¾	.08½	.08¾	.08½	.08¾
58-60 437 endpoint (U. S. Motor)	.08¾	.09¼	.08¾	.09	.08⅞	.09⅛
60-62 400 endpoint	.09	.09¼	.09	.09¼	.09⅛	.09¼
64-66 390 endpoint	.09⅛	.09⅜	.09⅛	.09⅜	.09¼	.09⅜
64-66 375 endpoint	.09½	.09⅝	.09½	.09⅝	.09½	.09⅝
68-70 360 endpoint	.09⅝	.09¾	.09⅝	.09¾	.09⅝	.09¾
64-66 437 endpoint (blend)	.08½	.08¾	.08½	.08¾	.08½	.08¾
***NORTH LOUISIANA—**						
58-60 437 endpoint (U. S. Motor)	.09¾	.10	.09¾	.10	.09½	.09¾
***ARKANSAS—**						
58-60 437 endpoint (U. S. Motor)	.09¾	.10	.09¾	.10	.09½	.09¾
PENNSYLVANIA—						
52-54 Naphtha	.08½	.09	.08½	.09	.08¼	.09
54-56 Naphtha	.09¼	.09½	.09¼	.09½	.09¼	.09½
58-60 Gasoline	.10	.10½	.10	.10½	.10	.10½
60 Gasoline	.10¼	.10½	.10¼	.10½	.10¼	.10½
62 Gasoline	.10½		.10½		.10½	
64 Gasoline	.10¾	.11	.10¾	.11	.10½	.10¾
68-70 350 endpoint gasoline	.11¼	.11½	.11¼	.11½	.11¼	.11½
CALIFORNIA—						
58-60 437 endpoint (U. S. Motor) domestic	.09	.10	.09	.10	.09	.10
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.08¾	.09	.08¾	.09	.08½	.08¾
56-58 450 endpoint	.08¾	.09	.08⅝	.08⅞	.08½	.08¾
58-60 437 endpoint (U. S. Motor)	.08¾	.09¼	.08⅞	.09¼	.09	.09¼
60-62 400 endpoint	.09¼	.09⅝	.09¼	.09½	.09¼	.09½
64-66 375 endpoint	.09⅝	.09⅞	.09⅝	.09⅞	.09⅜	.10
68-70 360 endpoint	.09¾	.10	.09¾	.10	.09¾	.10
64-66 437 endpoint (blend)	.09⅛	.09¼	.09⅛	.09¼	.08⅞	.09⅛
GULF COAST (Export)—						
58-60 (U. S. Motor)	.08½		.08½		.08½	
60-62 400 endpoint	.09½		.09½		.09½	
61-63 390 endpoint	.09¾		.09¾		.09¾	
64-66 375 endpoint	.10		.10		.10	

*Louisiana, Arkansas, Mississippi, East Texas delivery.

NATURAL GASOLINE

	June 18		June 11		June 4	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07⅝		.07½	.07⅝	.07½	.07⅝
Grade AA, 80-87.9, 375 e.p., rec. 90%	.07½		.07½		.07½	.07⅝
Grade B, 76-83.9, 375 e.p., rec. 85%	.07⅛	.07¼	.07⅛	.07¼	.07¼	
Grade BB, 84.92, 375 e.p., rec. 85%	.07⅛	.07¼	.07⅛		.07¼	
Grade C, 80-90, 375 e.p., rec. 78%	.07	.07⅛	.07	.07⅛	.07	.07¼
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07¼	.07½	.07¼	.07½	.07½	.07⅝
Grade AA, 80-87.9, 375 e.p., rec. 90%	.07¼		.07¼	.07½	.07½	.07⅝
Grade B, 76-83.9, 375 e.p., rec. 85%	.07⅛		.07⅛	.07¼	.07¼	
Grade BB, 84-92, 375 e.p., rec. 85%	.07⅛		.07⅛		.07¼	
Grade C, 80-90, 375 e.p., rec. 78%	.07	.07⅛	.07	.07⅛	.07	.07¼
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.07¾	.08	.08		.08	
Grade BB, 84-92, 375 e.p., rec. 85%	.07⅜	.07¾	.07¾		.07¾	
Grade C, 80-90, 375 e.p., rec. 78%	.07½		.07½		.07½	
CALIFORNIA—						
75-78, 375-390 endpoint	.08½	.09¼	.08½	.09¼	.08	.08½
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07½		.07½		.07½	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.07½		.07½		.07½	
Grade B, 76-83.9, 375 e.p., rec. 85%	.07¼		.07¼		.07¼	
Grade BB, 84.92, 375 e.p., rec. 85%	.07⅛		.07¼		.07¼	
Grade C, 80-90, 375 e.p., rec. 78%	.07	.07⅛	.07	.07⅛	.07¼	

BURNING OIL

	June 18		June 11		June 4	
OKLAHOMA (Group 3)—						
41-43 water white kerosene	.05¾	.06	.05¾	.06	.05⅞	.06
42-44 water white kerosene	.06¼	.06½	.06¼	.06½	.06⅝	.06½
***NORTH LOUISIANA—**						
41-43 water white kerosene	.06¾	.07	.06¾	.07	.06¾	
NORTH TEXAS—						
41-43 water white kerosene	.05½		.05½		.05⅝	.05¾
40-42 water white kerosene	.05¼		.05¼		.05½	
***ARKANSAS—**						
41-43 water white kerosene	.06¾	.07	.06¾	.07	.06¾	
PENNSYLVANIA—						
43 Kerosene prime white	.06½	.06¾	.06¾	.07	.06¾	.07
45 Kerosene water white	.06½	.06¾	.06¾	.07	.06¾	.07
46 Kerosene water white	.07	.07¼	.07	.07¼	.07	.07¼
47 Kerosene water white	.07½	.07¾	.07½	.07¾	.07½	.07¾
300 Mineral Seal	.07¼	.07½	.07¼	.07½	.07¼	.07½
CALIFORNIA—						
38-40 water white Kero. (high-burning test)	.05¾	.06½	.05¾	.06½	.05¾	.06½
Engine distillate, 43-44, 445 endpoint	.08	.08¾	.08	.08¾	.08	.08¾
Engine distillate, 42-44, 480 endpoint	.07½	.08¼	.07½	.08¼	.07½	.08¼
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.05¾	.06	.05¾	.06	.05¾	.06
42-44 water white kerosene	.06	.06¼	.06	.06¼	.06	.06¼
GULF COAST (Export)—						
41-43 prime white	.07¾		.07¾		.07¾	
41-43 water white	.08¾		.08¾		.08¾	

*Louisiana, Arkansas, Mississippi and East Texas delivery.

FUEL OIL

	June 18		June 11		June 4	
OKLAHOMA (Group 3)—						
Below 18 Fuel Oil, per bbl.	.50	.55	.50	.55	.50	.55
20-22 Fuel Oil, per bbl.	.55	.60	.55	.60	.55	.60
22-26 Fuel Oil, per bbl.	.60	.65	.60	.65	.60	.65
24-26 Fuel Oil, per bbl.	.65	.70	.65	.70	.65	.70
26-30 Fuel Oil, per bbl.	.82½	.87½	.82½	.87½	.82½	.87½
28-30 Fuel Oil, per bbl. (industrial)	.87½	.90	.87½	.90	.87½	.90
32-36 Gas Oil (industrial)	.02⅜	.02½	.02⅜	.02½	.02⅜	.02½
32-36 Gas Oil (straw color)	.02⅝	.02¾	.02⅝	.02¾	.02⅝	.02¾
36-38 Distillate	.03	.03⅛	.03	.03⅛	.03	.03⅛
38-40 Straw Distillate	.03¼	.03½	.03¼	.03½	.03¼	.03½
NORTH TEXAS—						
Below 20 Fuel Oil	.60	.65	.60	.65	.60	.65
24-26 Fuel Oil, per bbl.	.65	.70	.65	.70	.65	.70
32-36 Gas Oil (straw)	.02¾	.02½	.02⅜	.02½	.02⅜	.02½
38-40 Straw Distillate	.03¼		.03¼		.03¼	
***NORTH LOUISIANA—**						
18-20 Fuel Oil, per bbl.	.70	.80	.70	.80	.75	
30-32 Gas Oil	.02¾	.03	.02½	.02¾	.02⅝	.02¾
***ARKANSAS—**						
33-36 Distillate	.03	.03¼	.03	.03¼	.03	.03¼
30-32 Gas Oil	.02¾	.03	.02½	.02⅝	.02½	.02⅝
16-22 Refinery Fuel Oil, per bbl.	.70	.80	.70	.80	.75	
GULF COAST (South Texas)—						
Gas Oil	.04		.04		.03¾	.04
Bunker C Fuel (cargo lots), per bbl.	.80	.85	.80	.85	.80	.85
Bunker C Fuel (small lots)	.95	1.00	.95	1.00	.95	1.00
PENNSYLVANIA—						
30-34 Fuel Oil	.04½	.04¾	.04½	.04¾	.04½	.04¾
36-40 Fuel Oil	.04¾	.04⅞	.04¾	.05	.04¾	.05
CALIFORNIA—						
33-36 Distillate	.04¼	.04¾	.04¼	.04¾	.04¼	.04¾
26-32 Distillate	.03½	.04	.03½	.04	.03½	.04
15-20 Fuel Oil. Bunker (at tide water)	.65	.85	.65	.85	.65	.85
15-20 Fuel Oil (cargo lots), per bbl.	.70	.85	.70	.85	.70	.85
27 plus Diesel, per bbl.	.90	1.05	.90	1.05	.90	1.05
CHICAGO DISTRICT (Based on Group 3)—						
22-26 Fuel Oil, per bbl.	.60	.65	.60	.65	.60	.65
18-22 Fuel Oil, per bbl.	.45	.50	.45	.50	.45	.50
28-30 Fuel Oil	.87½	.92½	.85	.90	.85	.90
32-36 Gas Oil (zero)	.02½	.02⅝	.02½	.02⅝	.02½	.02⅝
32-36 Gas Oil (industrial)	.02¼	.02½	.02¼	.02½	.02¼	.02½
36-38 Distillate	.03⅛	.03¼	.03⅛	.03¼	.03¼	.03⅜
38-40 Straw Distillate	.03⅜	.03½	.03⅜	.03½	.03⅜	.03⅜

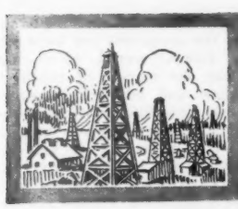
*Louisiana, Arkansas, Mississippi, East Texas delivery.

LUBRICATING OIL AND WAX

	June 18		June 11		June 4	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.06¾	.07	.06¾	.07	.06¾	.07
100 vis., 3 color, 20-25 cold test	.05¾	.06	.05¾	.06	.05¾	.06
150 vis , 3 color, 20-25 cold test	.07¾	.08	.07¾	.08	.07¾	.08
150 vis., 4 color, 20-25 cold test	.07¼	.07½	.07¼	.07½	.07¼	.07½
180 vis., 3 color, 23-28 cold test	.09¼	.09½	.09¼	.09½	.09¼	.09¼
180 vis., 4 color, 23-28 cold test	.08¾	.09	.08¾	.09	.08¾	.09
180 vis., 5 color, 23-28 cold test	.08½	.08¾	.08½	.08¾	.08½	.08¾
200 vis., 3 color, 23-28 cold test	.09¾	.10	.09¾	.10	.09¾	.10
200 vis., 4 color, 23-28 cold test	.09¼	.09½	.09¼	.09½	.09¼	.09½
200 vis., 5 color, 23-28 cold test	.08¾	.09	.08¾	.09	.08¾	.09
240 vis., 3 color, 25-30 cold test	.13¼	.13½	.13¼	.13½	.13¼	.13½
240 vis., 4 color 25-30 cold test	.12¼	.12½	.12¼	.12½	.12¼	.12½
240 vis., 5 color, 25-30 cold test	.11¾	.12	.11¾	.12	.11¾	.12
280 vis., 3 color, 25-30 cold test	.15¾	.16	.15¾	.16	.15¾	.16
280 vis., 4 color, 25-30 cold test	.14¾	.15	.14¾	.15	.14¾	.15
280 vis., 5 color, 25-30 cold test	.13¾	.14	.13¾	.14	.13¾	.14
Cylinder Stocks:						
600, steam refined, light green	.14	.15	.14	.15	.14½	.15
600, steam refined, dark green	.13		.13		.13½	
190-200 vis., D color Bright Stock	.40		.40		.40	.41
150-160 vis., D color Bright Stock	.35		.35		.35	.36
150-160 vis., E color Bright Stock	.33		.33		.33	.34
Waxes:						
124-126 White Crude Scale Wax	.02½		.02½		.02½	.02¾
PENNSYLVANIA—						
34 Neutral	.07¾	.08	.07¾	.08	.07¾	.08
34 Sundebloom	.07¾	.08	.07¾	.08	.07¾	.08
36 Miners' Neutral	.07¾	.08	.07¾	.08	.07¾	.08
150, 3 color	.20½	.21	.21½	.22	.21½	.22
180, 3 color	.26	.26½	.27	.27½	.27	.27½
200, 3 color	.28	.28½	.29	.30	.29	.30
220, 3 color	.31	.31½	.31	.31½	.31	.31½
600, steam refined	.32½	.33	.32½	.33	.33½	.34
635, steam refined	.34	.35	.35	.36	.36	.37
650, steam refined	.37	.38	.39	.39½	.39	.39½
600, Pennsylvania Flash	.38½	.39½	.41½	.42	.41½	.42
630, Pennsylvania Flash	.41	.42	.44	.45	.44	.45
600, E filtered	.36½	.37	.36½	.37	.36½	.37
600, D filtered	.39	.40	.43½	.44	.43½	.44
Pennsylvania Bright Stock	.51	.52	.51	.52	.52	.54
*122-124 White Crude Scale Wax	.02⅞		.03		.03¾	
*124-126 White Crude Scale Wax	.03	.03⅛	.03¼		.04	

*At New York.

GULF COAST (South Texas)—						
No. 2 color, 100 vis., pale oil	.06½	.07	.06½	.07	.06½	.07
No. 3 color, 200 vis., pale oil	.09½	.10	.09	.10	.09	.10
No. 3 color, 300 vis., pale oil	.10½	.10¾	.10	.10½	.10	.10½
No. 3½ color, 500 vis., pale oil	.11¾	.12¼	.11	.11½	.11	.11½
No. 4 color, 750 vis., pale oil	.13	.13½	.13	.13½	.14	.14½
No. 5 to 6 color, 200 vis., red oil	.08½	.08¾	.07½	.08	.07½	.08
No. 5 to 6 color, 300 vis., red oil	.09¾	.10¼	.08½	.09	.08½	.09
No. 5 to 6 color, 500 vis., red oil	.11¼	.11½	.09½	.10½	.09½	.10½
No. 5 to 6 color, 750 vis., red oil	.12½	.13	.12½	.13	.12½	.13
No. 2½ color, 200 vis., pale filtered	.11	.12	.11	.12	.11	.12
No. 2½ color, 300 vis., pale filtered	.12	.13	.12	.13	.12	.13
No. 2½ color, 500 vis., pale filtered	.14½	.15	.14½	.15	.14½	.15
No. 2½-3 color, 750 vis., pale filtered	.17	.19	.17	.19	.17	.19



REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

CALIFORNIA—						
130 vis., 2½-3 color	.10¼	.10½	.10¼	.10½	.10¼	.10½
200 vis., 2½-3 color	.11½	.11¾	.11½	.11¾	.11½	.11¾
300 vis., 3-3½ color	.13	.13½	.13	.13½	.13	.13½
350 vis., 3½-4 color	.13½	.13¾	.13½	.13¾	.13½	.13¾
400 vis., 3½-4 color	.15	.15½	.15	.15½	.15	.15½
Red Neutral:						
200 vis., 4½-5 color	.11	.11¼	.11	.11¼	.11	.11¼
300 vis., 5-6 color	.12	.12¼	.12	.12¼	.12	.12¼
400 vis., 5-6 color	.13¼	.14	.13¼	.14	.13¼	.14
500 vis., 4½-5 color	.14¼	.15½	.14¼	.15½	.14¼	.15½
500 vis., 5-6½ color	.15	.15¼	.15	.15¼	.15	.15¼
600 vis., 6½ plus color	.16	.16½	.16	.16½	.16	.16¼

Note—Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	June 18		June 11		June 4	
Gasoline, U. S. Motor, 58-60,437	.10		.10		.10	
Kerosene, water white, 41-43	.08		.08		.08	
*Fuel Oil, Bunker "C," 14-16, per bbl.	1.05		1.05		1.05	
†Fuel Oil, Diesel 28-30, per bbl.	2.00		2.00		2.00	
Gas Oil, 32-36 gravity	.05	.05½	.05	.05½	.05	.05½
25 pale Paraffin Oil	.10½		.10½		.10½	
28 pale Paraffin Oil	.07¼		.07¼		.07¼	
285 red Paraffin Oil	.11½		.11½		.11½	
250 red Paraffin Oil	.11		.11		.11	
225 red Paraffin Oil	.09½		.09½		.09½	
200 red Paraffin Oil	.09		.09		.09	
Refined Wax:						
120-122 a.m.p., per lb.	.03⅝		.03⅝		.03⅝	
125-127 a.m.p., per lb.	.04⅛		.04¼		.04¼	
130-132 a.m.p, per lb.	.04¾		.04¾		.04¾	
133-135 a.m.p. per lb.	.06⅛		.06⅛		.06⅛	
135-137 a.m.p., per lb.	.06½		.06½		.06½	
Petrolatum in barrels, carload lots, per pound:						
Dark green	.02		.02		.02	
Amber	.03½		.03½		.03½	
Extra amber	.03¾		.03¾		.03¾	
Cream	.06½		.06½		.06½	
Lily white	.07½		.07½		.07½	
Snow white	.08½		.08½		.08½	

*Lighterage 5.0 cents a barrel extra. †Lighterage 6.5 cents a barrel extra.

NEW YORK (BAYONNE) EXPORT PRICES

	June 18		June 11		June 4	
Kerosene, prime white	.08		.08		.08	
Kerosene, water white	.09		.09		.09	
600, steam refined cylinder stocks, in bbls.	.42	.43	.42	.43	.43	.44
635, steam refined	.44	.45	.44	.45	.45	.46
650, steam refined	.49	.50	.49	.50	.50	.51
600, Pennsylvania Flash	.52	.53	.52	.53	.53	.54
630, Pennsylvania Flash	.57	.58	.57	.58	.58	.59
600, Warren E	.44	.45	.44	.45	.45	.46
600, Oil City E	.44	.45	.44	.45	.44	.45
Light 140-150 Bright Stocks	.61	.66	.61	.66	.63	.68
Dark 140-150 Bright Stocks	.60	.64	.60	.64	.61	.66

LOS ANGELES EXPORT PRICES

	June 18		June 11		June 4	
Kerosene, water white	.05½	.06	.05½	.06	.05½	.06
U. S. Motor Gasoline, 53-55, 437 e.p.	.07	.07½	.07	.07½	.07	.07½

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Corsicana heavy (January 11)* ..... .80
Other fields .....See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties—See gravity table.

WEST TEXAS

Iatan* .....Same as North Texas
Crane-Upton-Crockett, Pecos, Winkler, Mitchell, and Glasscock (See gravity table).
Chalk† ..... .65

*Includes Howard County and Westbrook Fields.
†Posted by Humble Oil & Refining Co.

ARKANSAS-NORTH LOUISIANA

Smackover, below 24 gravity (May 20, 1929) .....$ .85
Smackover, 24 gravity and above (May 20, 1929) 1.00
Cotton Valley (Below 36 gravity May 22) ..... .85
Bellevue (May 29, 1929) 1.30
Urania (May 21, 1929) 1.10
East El Dorado (May 22, 1929) ..... .85
Other fields .....See gravity table

Cotton Valley crude above 36 gravity takes same gravity price schedule as shown for North Louisiana and Arkansas crude in Mid-Continent gravity price table.

Note—Smackover, Cotton Valley and Bellevue posted by Standard Oil Co. of Louisiana, and Magnolia Petroleum Co.; Urania posted by Louisiana Oil Refining Corp.; East El Dorado, Magnolia Petroleum Co.

GULF COAST

Grade A (May 20)* $1.30
Grade B .....See gravity table
Jennings, La. (March 14)† 1.05
Saratoga, Batson, Dayton (March 14, 1927)‡ 1.20
Markham (March 14)§ 1.00
High Island (December 14)¶ 1.00

*Humble Oil & Refining Co., The Texas Company, Gulf Pipe Line Co., and Sun Pipe Line Co. †Gulf Pipe Line Co. ‡Sun Pipe Line Co. §The Texas Company.
¶Posted by Gulf Pipe Line Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.
(Effective May 21, 1929)

Rock Creek, Wyo. $1.40
Salt Creek .....See gravity table
Big Muddy 1.43
Grass Creek, heavy (July 27, 1928) .... .90
Grass Creek, light 1.65
Mule Creek 1.20
Elk Basin 1.65
Lance Creek 1.68
Poison Spider (March 14, 1927) 1.00
Notches (March 14, 1927) ..... .65
Rex Lake (February 22) 1.10
Osage 1.65
Lost Soldier (contract, May 22) 1.05
Hamilton Dome (March 14, 1927) ..... .85
Greybull 1.65
Cat Creek (Montana) (July 27, 1928).. 1.48
Sunburst (Montana) (May 23, 1929) ... 1.75
Torchlight 1.65
Hogback (New Mexico) (July 27, 1928) 1.70

Note—Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

Luling (May 2)* .....$ .90
Mirando (May 20, 1929)† ..... .90
Salt Flat (May 20, 1929)§ 1.25
Rockdale-Minerva (April 15):
Below 28 gravity 1.25
28-38.9 gravity 1.27
39-39.9 gravity 1.29

(Continued on Page 152)

CRUDE OIL GRAVITY TABLE

Gravity—	1 Okla., Kans. N. C. Tex.	2 No. La. and Arkansas	3 Crane, Upton, Crockett, Winkler, Howard, Pecos, Texas crudes, and Lea, N. Mex.	4 Stephens, Ark.	5 Wheeler (Texas Panhandle)	6 Gray County (Texas Panhandle)	7 Carson and Hutchinson (Texas Panhandle)	8 Salt Creek, Wyo.	9 Grade B & Light Crude (G. Coast)	10 Somerset (South Central Texas)
24 and above	....	....	....	....	....	....	....	....	....	....
Below 24	....	....	....	....	....	....	....	....	....	....
Below 25	.85	....	.70	....	....	....	....	....	1.15	....
25 to 25.9	.90	....	74	....	....	....	....	....	1.18	....
26 to 26.9	.95	....	.78	....	....	....	....	....	1.21	....
27 to 27.9	1.00	....	.82	....	....	....	....	....	1.24	....
Below 28	....	1.00	....	.90	.90	.90	.90	....	....	....
28 to 28.9	1.05	1.05	.86	.94	.90	.90	.90	....	1.27	....
29 to 29.9	1.10	1.10	.90	.98	.90	.95	.90	1.10	1.30	....
30 to 30.9	1.15	1.15	.94	1.02	.95	1.00	.90	1.15	1.33	....
31 to 31.9	1.20	1.20	.98	1.06	1.00	1.05	.90	1.20	1.36	....
32 to 32.9	1.25	1.25	1.02	1.10	1.05	1.10	.95	1.25	1.39	1.01
33 to 33.9	1.30	1.30	1.06	....	1.10	1.15	1.00	1.30	1.42	1.07
34 to 34.9	1.35	1.35	1.10	....	1.15	1.20	1.05	1.35	1.45	1.09
35 to 35.9	1.40	1.40	1.14	....	1.20	1.25	1.10	1.40	1.48	1.11
36 to 36.9	1.45	1.45	1.18	....	1.25	1.30	1.15	1.45	....	1.13
37 to 37.9	1.50	1.50	....	....	1.30	1.35	1.20	1.50	....	1.15
38 to 38.9	1.55	1.55	....	....	1.35	1.40	1.25	....	....	1.17
39 to 39.9	1.60	1.60	....	....	1.40	1.45	1.30	....	....	....
40 to 40.9	1.65	1.65	....	....	1.45	1.50	1.35	....	....	....
41 to 41.9	1.70	1.70	....	....	1.50	1.55	1.40	....	....	....
42 to 42.9	1.75	1.75	....	....	1.55	1.60	1.45	....	....	....
43 to 43.9	1.80	1.80	....	....	1.60	1.65	1.50	....	....	....
44 and above	1.85	1.85	....	....	1.65	1.70	1.55	....	....	....

Column 1, Note—Magnolia Petroleum Co. posted schedule May 20, 1929, making price below 26 gravity 70 cents per barrel, 26-26.9 gravity 75 cents, 27-27.9 gravity 85 cents, 28-28.9 gravity 90 cents, 29-29.9 gravity 95 cents, 30-30.9 gravity $1.05, and 31-31.9 gravity $1.15, with balance of the price schedule as shown above.

Oklahoma—Carter Oil Co., Prairie Oil & Gas Co., Sinclair Oil & Gas Co., Gypsy Oil Co., The Texas Company, May 20.

North Central Texas—Including Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Nocona and Moran, Prairie Oil & Gas Co., Sinclair Oil Refining Co., Humble Oil & Refining Co., The Texas Company and Gulf Refining Co., May 20.

Kansas—Prairie, Sinclair, The Texas Company and Carter, May 20.

Column 2—Arkansas and North Louisiana—[Caddo, Bull Bayou, Crichton, Cotton Valley, above 36 gravity, DeSoto, Haynesville, Homer and El Dorado only], May 20, Standard Oil Co. of Louisiana, Louisiana Oil Refining Corp., Gulf Refining Co., Magnolia Petroleum Co., schedule applies to Pine Island, Haynesville, Bull Bayou, Louisiana and El Dorado, Ark., light crude.

Column 3—Humble Oil & Refining Co. and Magnolia Petroleum Co., May 20.

Column 4—Atlantic Oil Producing Co., Louisiana Oil & Refining Corp., May 21, 1929.

Columns 5, 6 and 7—Humble Oil & Refining Co., Magnolia Petroleum Co., May 20, 1929.

Column 8—Midwest Refining Co., May 20, 1929. All crude over 37 gravity $1.50 per barrel.

Column 9—Humble Oil & Refining Co., May 20, 1929 (schedule ends 35 and above).

Column 10—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., April 7.

CALIFORNIA CRUDE OIL PRICES

Standard Oil Co.-Union Oil Co. (Effective January 18, 1929)

Gravity—	1 Salt Lake, Potrero, Newport, Long Beach, Summerland, Lawndale Los Angeles, Fullerton, Richfield, Torrance, Olinda-Brea, Alamitos Heights, Signal Hill, Seal Beach, Huntington Beach, Inglewood, Athens-Rosecrans-Dominguez, Watsonville	2 Whittier, La Habra, Coyote Hills	3 Midway-Sunset, Elk Hills, Lost Hills, Belridge, Buena Vista Hills	4 Montebello	5 Santa Fe Springs	6 Santa Maria, Coalinga	7 Wheeler Ridge, Fruitvale	8 Orcutt Ventura, Rincon	9 Ventura Ave.	Elwood Terrace
14 to 14.9	.70	.70	.50	.70	....	.50	.50	.65	.70	....
15 to 15.9	.70	.70	.50	.70	....	.50	.50	.65	.70	....
16 to 16.9	.70	.70	.50	.70	....	.50	.50	.65	.70	....
17 to 17.9	.70	.70	.50	.70	....	.50	.50	.65	.70	....
18 to 18.9	.75	.75	.56	.70	....	.56	.56	.70	.75	....
19 to 19.9	.80	.80	.62	.75	....	.62	.62	.70	.80	....
20 to 20.9	.85	.84	.68	.80	....	.68	.68	.70	.85	....
21 to 21.9	.89	.88	.74	.85	.89	.74	.74	.86	.86	....
22 to 22.9	.93	.91	.80	.90	.92	.80	.80	.87	.87	....
23 to 23.9	.97	.94	.85	.95	.95	.85	.85	.90	.90	....
24 to 24.9	1.01	.97	.90	.98	.98	.88	.88	.94	.94	....
25 to 25.9	1.05	1.00	.95	1.01	1.01	.93	.91	.94	.94	....
26 to 26.9	1.09	1.04	1.00	1.04	1.04	.94	.94	1.02	1.02	....
27 to 27.9	1.13	1.08	1.05	1.07	1.07	.93	.97	....	1.06	....
28 to 28.9	1.17	1.12	1.10	1.10	1.10	1.02	....	....	1.10	....
29 to 29.9	1.21	1.16	1.16	1.13	1.15	1.06	....	....	1.14	....
30 to 30.9	1.25	1.20	1.22	1.16	1.20	1.10	....	....	1.18	....
31 to 31.9	1.30	....	1.28	....	1.25	1.14	....	....	1.23	....
32 to 32.9	1.35	....	1.34	....	1.30	1.18	....	....	1.28	....
33 to 33.9	1.41	....	1.40	....	1.35	1.22	....	....	1.34	....
34 to 34.9	1.47	....	1.46	....	1.40	1.26	....	....	1.40	1.16
35 to 35.9	1.53	....	....	....	1.45	1.30	....	....	1.46	1.22
36 to 36.9	1.59	....	....	....	1.50	....	....	....	1.52	1.28
37 to 37.9	1.65	....	....	....	1.55	....	....	....	1.58	1.34
38 to 38.9	1.71	....	....	....	1.60	....	....	....	1.64	1.40
39 to 39.9	1.77	....	....	....	1.65	....	....	....	1.70	1.46
40 to 40.9	1.83	....	....	....	....	....	....	....	1.76	1.52
41 to 41.9	1.89	....	....	....	....	....	....	....	1.82	1.58
42 to 42.9	1.95	....	....	....	....	....	....	....	1.88	1.64

Kern River, Newhall-McKittrick, Mount Poso and Round Mountain 11 to 13.9 gravity 45 cents, 14 gravity and above 50 cents, effective October 2, 1929. On December 1, 1928, the Union Oil Co. posted Midway-Sunset, Elk Hills, Buena Vista, Lost Hills and Coalinga crude as follows: 11 to 13.9 gravity at 45 cents, 14 gravity and above 50 cents.

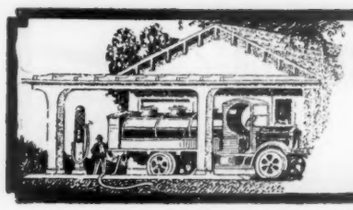
Column 1—Signal Hill, Seal Beach, Huntington Beach and Alamitos Heights crude, 14 to 32.9 gravity, inclusive; Richfield, Olinda-Brea and Fullerton, 14 to 30.9 gravity; Torrance and Inglewood, 14 to 28.9 gravity, Domingues and Athens-Rosecrans, 24 to 42.9 gravity.

Column 2—Whittier crude, 14 to 22.9 gravity; Coyote Hills, 14 to 30.9 gravity.

Column 3—Kern River, Newhall and McKittrick, 11 to 19.9 gravity; Midway-Sunset, Buena Vista and Elk Hills, 11 to 33.9 gravity; Lost Hills, 11 to 34.9 gravity; oil below 14 gravity posted at 45 cents.

Column 6—Oil below 14 gravity posted at 45 cents.

Columns 8 and 9 posted by Union Oil Co. only.



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns June 18.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Chicago dist.†..	16.0	17.0	...	13.0
Decatur, Ill. ...	16.2	17.2	...	13.1
E. St. Louis ...	15.4	16.4	...	12.2
Joliet	16.4	17.4	...	13.3
Peoria	16.2	17.2	...	13.1
Quincy	16.2	17.2	...	12.9
Davenport, Ia..	19.5	20.5	3.0	13.3
Des Moines ..	19.5	20.5	3.0	13.3
Keokuk	19.5	20.5	3.0	13.3
Sioux City	19.1	20.1	3.0	12.9
Duluth, Minn..	20.6	21.5	3.0	13.9
Mankato	20.1	21.1	3.0	13.7
Minneapolis ...	20.2	21.2	3.0	13.9
LaCrosse, Wis..	19.2	20.2	2.0	14.0
Milwaukee	18.1	19.1	2.0	12.9
Madison	18.3	19.3	2.0	13.1
Detroit, Mich...	19.8	20.8	3.0	14.7
Grand Rapids..	19.7	20.7	3.0	14.6
Saginaw	19.9	20.9	3.0	14.8
Evansville, Ind.	20.0	21.0	4.0	14.0
Fort Wayne ..	20.4	21.4	4.0	14.4
Indianapolis* ..	20.2	21.2	4.0	14.2
South Bend ...	20.4	21.4	4.0	14.4
Fargo, N. D...	20.9	21.9	2.0	15.9
Huron, S. D. ..	21.3	22.3	4.0	14.7
Sioux Falls ...	20.1	21.1	4.0	14.4
K. C., Mo.* ...	18.9	19.9	3.0	11.6
Springfield* ...	18.8	19.8	3.0	12.5
St. Louis*	17.9	18.9	2.5	12.3
St. Joseph	18.5	19.5	3.0	12.2
Wichita, Kans..	17.8	18.8	3.0	11.8
Bartlesville, Ok.	17.5	18.5	3.0	11.5

*State tax 2 cents; remainder city tax.
†Effective February 20, discounts on Q.D.A. in Chicago district 2 cents off service station price on purchases of 500 gallons or more per month and 4 cents on purchases of 1,000 gallons or more per month.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	16.7	12.9
V. M. & P. Naphtha	17.2	13.9
Cleaner's naphtha	17.0	14.9
Stanisol	15.0	15.4

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9.0
100 to 799 gallons	8.0
800 gallons or more	7.5

Note—Outside Chicago furnace oil discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

The following quantity discounts from the service station price are allowed on monthly sales of gasoline; 2,000 gallons or less, 2 cents; more than 2,000 and less than 6,000 gallons, 2½ cents; more than 6,000 gallons, 3 cents. Discounts are allowed each month, and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discount on the previous month's purchases.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Dallas, Tex. ...	15.0	19.0	2.0	13.0
Fort Worth ...	15.0	18.0	2.0	12.0
Houston	15.0	19.0	2.0	13.0
San Antonio ..	15.0	19.0	2.0	11.0
El Paso	17.0	20.0	2.0	16.0
Texarkana	16.0	19.0	2.0	13.0
Muskogee, Ok.*	15.0	18.0	3.0	13.0
Okla. City* ...	15.0	18.0	3.0	10.0
Tulsa*	13.0	17.0	3.0	10.0
Ft. Smith, Ark.	15.0	19.0	5.0	12.0
Little Rock ...	20.0	24.0	5.0	18.0

*Gasoline tank wagon price to dealers 2 cents under posted tank wagon.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Denver, Colo...	18.0	21.0	4.0	15.5
Pueblo	18.0	21.0	4.0	15.5
Grand Junction	22.5	25.5	4.0	19.0
Casper, Wyo. ..	21.0	24.0	4.0	14.0
Cheyenne	22.0	25.0	4.0	15.5
Butte, Mont. ..	25.5	28.5	5.0	20.0
Helena	25.5	28.5	5.0	20.0
Salt Lake, Utah	22.0	25.0	3.5	17.0
Albu'que, N. M.	21.0	24.0	5.0	17.0
Boise, Idaho ..	24.5	27.5	4.0	19.0
Twin Falls	24.5	27.5	4.0	19.0

PENNSYLVANIA—DELAWARE AND PART NEW ENGLAND

The Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Pittsburgh, Pa.	17.0	*22.0	...	14.0
Philadelphia ..	17.0	*22.0	...	14.0
Scranton ...	17.0	*22.0	...	14.0
Allentown ...	17.0	*22.0	...	14.0
Altoona ...	17.0	*22.0	...	14.0
Erie	14.0	*18.0	...	14.0
Dover, Del.	20.0	22.0	3.0	14.0
Wilmington ...	20.0	22.0	3.0	14.0
Springf'd, Mass.	18.0	20.0	2.0	15.0
Worcester	17.0	18.0	2.0	15.0
Boston	18.0	20.0	2.0	15.0
Providence, R.I.	16.0	17.0	2.0	15.0
Hartford, Conn.	18.0	20.0	2.0	14.0
New Haven ...	18.0	20.0	2.0	15.0

*Includes tax of 3.0 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the state. The Atlantic Refining Co. recognizes a 2-cent per gallon discount on gasoline from its posted tank wagon markets on sales to dealers for purposes of resale. The Atlantic Refining Co. also recognizes a maximum discount of 3 cents per gallon on gasoline to commercial accounts under contract for one year.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Albany, N. Y...	15.0	17.0	2.0	15.0
New York* ...	19.0	21.0	2.0	15.0
Buffalo	16.0	18.0	2.0	14.0
Rochester	16.0	18.0	2.0	14.0
Syracuse	16.0	18.0	2.0	15.0
Boston, Mass..	18.0	20.0	2.0	15.0
Augusta, Me...	20.0	22.0	4.0	15.0
Manch't'r, N.H.	20.0	22.0	4.0	15.0
Burlington, Vt..	19.0	20.0	4.0	15.0

*Prices in steel barrels.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlanta, Ga. ..	21.0	23.0	4.0	16.5
Augusta	21.0	23.0	4.0	15.5
Macon	21.0	23.0	4.0	16.5
Savannah	20.0	22.0	4.0	15.5
Birm'ham, Ala..	21.0	23.0	4.0	16.0
Mobile	21.0	23.0	4.0	16.0
Montgomery ...	22.0	24.0	4.0	16.5
Clarks'le, Miss..	19.0	21.0	5.0	12.5
Jackson	17.0	19.0	5.0	13.0
Natchez	20.5	22.5	5.0	14.0
Gulfport	22.5	24.5	5.0	14.0
Vicksburg	20.5	22.5	5.0	14.0
Jack'ville, Fla..	22.0	24.0	5.0	14.5
Miami	23.0	25.0	5.0	15.5
Pensacola	23.0	25.0	5.0	14.5
Tampa	22.0	24.0	5.0	14.5
Lexington, Ky..	20.0	22.0	5.0	15.5
Covington	20.0	21.0	5.0	15.5
Louisville	20.0	22.0	5.0	15.0
Ashland	18.0	19.0	5.0	15.5
Catlettsburg ..	18.0	19.0	5.0	15.5

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. Pensacola and Mobile taxes include 1-cent city levy. Gulfport tax includes privilege tax of 2 cents in addition to state tax.

PACIFIC COAST TERRITORY

Standard Oil Co. (California)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
San Francisco..	19.0	23.0	3.0	15.5
Los Angeles ..	18.5	22.5	3.0	15.5
Reno, Nev. ..	24.0	26.0	4.0	19.0
Portland, Ore..	19.5	23.5	3.0	16.5
Seattle, Wash..	18.5	22.5	2.0	16.5
Tacoma	18.5	22.5	2.0	16.5
Spokane	22.5	26.5	2.0	20.5
Phoenix, Ariz..	18.0	22.0	4.0	20.5

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Omaha	20.25	22.25	4.0	13.25
McCook	21.75	23.75	4.0	14.75
Norfolk	20.75	22.75	4.0	13.75
N. Platte	21.75	23.75	4.0	14.50
Scottsbluff	21.75	23.75	4.0	14.25

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlantic City ..	14.0	18.0	2.0	13.0
Newark, N. J...	16.0	20.0	2.0	13.0
Annapolis, Md..	18.0	22.0	4.0	13.0
Baltimore	18.0	22.0	4.0	12.0
Cumberland ...	18.0	22.0	4.0	13.0
Washington ...	16.0	20.0	2.0	12.0
Danville, Va....	19.0	23.0	5.0	12.0
Norfolk	19.0	23.0	5.0	13.0
Petersburg	19.0	23.0	5.0	13.0
Roanoke	19.0	23.0	5.0	13.0
Richmond	19.0	23.0	5.0	13.0
Charles'n, W.Va.	18.0	22.0	4.0	13.0
Keyser	18.0	22.0	4.0	13.0
Parkersburg ..	18.0	20.0	4.0	13.0
Wheeling	18.0	22.0	4.0	13.0
Charlotte, N. C.	19.0	23.0	5.0	13.0
Hickory	19.0	23.0	5.0	13.0
Mt. Airy	19.0	23.0	5.0	13.0
Salisbury	18.0	20.0	5.0	13.0
Charleston, S.C.	20.0	24.0	6.0	13.0
Columbia	20.0	24.0	6.0	13.0

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Ohio points* ..	20.0	21.0	4.0	†14.0

*Dealers and commercial accounts 2 cents under tank wagon.
†Service station price 16 cents.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
N. Orleans, La.*	18.5	22.5	5.0	16.0
Baton Rouge ..	17.0	21.0	4.0	14.5
Alexandria	18.0	22.0	4.0	16.0
Lafayette†	19.0	23.0	5.0	14.0
Lake Charles† .	19.5	23.5	5.0	16.0
Shreveport	18.5	22.5	4.0	15.0
Knoxv'le, Tenn.	22.0	26.0	5.0	16.0
Memphis	18.0	23.0	5.0	12.5
Chattanooga ..	21.5	25.5	5.0	16.0
Nashville	19.0	23.0	5.0	16.0
Bristol	22.0	25.0	5.0	14.0
Lit. Rock, Ark..	20.0	24.0	5.0	13.0

*Tax of 5 cents includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax and 1-cent parish tax.
†Includes 1-cent parish tax.

TANK WAGON CHANGES

June 11—Magnolia Petroleum Co. advanced the gasoline tank wagon and station prices 2 cents in Texas.

June 14—Atlantic Refining Co. advanced the gasoline tank wagon and station prices throughout their territory with a few exceptions.

COL. STEWART GIVES $200,000 TO COLLEGE

CEDAR RAPIDS, Iowa, June 15.—Robert W. Stewart of Chicago, former chairman of the board of the Standard Oil Co. of Indiana, has given $200,000 to Coe College, his alma mater, to erect a library as a memorial to his parents, who settled in Cedar Rapids when it was a frontier village. He intimated that if the amount was not enough he would give more.

While it was founded by Presbyterians, the college is nonsectarian now. The directors accepted the gift by unanimous vote.

GULF COAST MARKET

HOUSTON, Tex., June 18.—The pale and red oil market on the Gulf Coast was moved upward generally a half cent late in the week when sellers who previously had not followed the lead of a few in boosting quotations after the crude advance several weeks ago fell into line steadying the new price structure at the higher level. The demand for Coastal neutral oils continues far from satisfactory probably because of the general trend toward blended oils but an improvement in the movement has been felt in the last several weeks which has served to clear the market of considerable low priced and competition material. Fuel oils, gasolines and gas oils continued little changed. Sellers usually are able to supply bunker C only in small lots which is bringing from 95 cents to $1. Usually 95 cents for spot movement with $1 being quoted for future delivery. Cargo lots where available are quoted from 80 to 85 cents.

SOUTH LOUISIANA DIVISION

SHREVEPORT, La., June 17.—Organization of a South Louisiana division with headquarters at Lake Charles with C. A. Richardson, of the J. G. Gray interests as vice president, has been completed by the Louisiana-Arkansas Division of the Mid-Continent Oil and Gas Association. Members of the executive committee of the Louisiana-Arkansas division from the Gulf Coast district, in addition to Mr. Richardson are C. O. Noble, independent operator; C. H. Benckenstein, Vinton Petroleum Co., and H. G. Chalkley, Sweet Lake Land & Oil Co. Others taking memberships in the district organization are J. S. Abercrombie, Houston, Tex.; H. DeWolf, Paul Seashore and R. W. Wimbisg, Louisiana Land & Exploration Co.; L. Seiss, Moon Oil Co.; C. M. Crotty, independent; M. P. Irwin; H. G. Chalkley, Jr., S. A. Knapp and Frank Roberts, Sweet Lake Land & Oil Co.; L. P. Vincent, Vinton, La.; W. T. Burton, Sulphur, La.; Thad Wynn, Humble Oil & Refining Co.; Marrs McLean, Beaumont; J. Cook Wilson, Wilson-Broach Co.; and Yount Lee Oil Co. of Beaumont.

CRUDE OIL PRICES

(Continued from Page 151)

40 and above	1.31
Thrall‡	...
Callihan (May 15)	1.75
Lytton Springs (Lockhart)	See gravity table
Somerset	See gravity table

*Posted by Magnolia Petroleum Co.
†Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co.
‡Thrall prices same as North Central Texas less 19½ cents per cwt. freight.
§Humble Oil & Refining Co.

EASTERN STATES

Joseph Seep Purchasing Agency
(Effective January 4, 1929)

Penna Grade Oil in New York Transit Lines (New York)	$4.10
Bradford District Oil in National Transit Lines (Pennsylvania)	4.10
Penna Grade Oil in National Transit Lines (Pennsylvania)	4.00
Penna Crude Oil in Southwest Pennsylvania Lines (West Virginia)	4.00
Penna Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	3.90
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	3.85
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) (May 22, 1929)	1.75
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s Line (May 22, 1929).	1.80
Corning 25-cent Grade Oil in Buckeye Pipe Line Co.'s Lines (May 22, 1929)	1.90
Somerset Oil in Cumberland Pipe Line Lines (Kentucky) (May 22, 1929) ...	1.80
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky) (Jan. 29) ...	.60

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective May 21, 1929)

Lima	$1.80
Wooster	1.90
Illinois	1.75
Indiana	1.57
Princeton	1.75
Plymouth	1.28
Waterloo (November 17, 1926)	1.35
Western Kentucky	1.83
Dundee, Mich. (May 23, 1929)‖	1.10
Midland, Mich. (June 3, 1929)*	1.70
Saginaw, Mich., Saginaw Sand (February 10)†	1.89
Saginaw, Mich., Berea Sand (February 10)†	1.79
Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky, (March 15)‡	1.50
Oil in line in Stoll Oil Refining Co. in Oil City, Ky. (June 1, 1929)§	1.80
Oil Springs (Canada)¶	2.27
Petrolia (Canada)¶	2.20

*Posted by Pure Oil Co.
†Posted by Sun Oil Co.
‡Posted by Paragon Development Co.
§Posted by Stoll Oil Refining Co.
¶Posted by Imperial Oil Co., Ltd.
‖Posted by Standard of Indiana for boat shipment.

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Royal Dutch Net Earnings Show Gain

Income Last Year Equaled 24.75 Per Cent of Ordinary Stock. Sir Henri Deterding Optimistic on Outlook

The report of Royal Dutch Co. (holding company) for year ended December 31, 1928, shows net income of 103,367,780 florins after expenses and taxes, equivalent after dividends on 4 per cent and 4½ per cent preferred stocks, to 24.75 per cent on 412,103,000 florins ordinary stock. This compares with 101,978,637 florins or 24.42 per cent on ordinary stock in 1927.

Sir Henri W. A. Deterding, managing director of Royal Dutch Co., in remarks accompanying the annual report, stated that the Royal Dutch group of companies produced 22,063,411 metric tons of crude oil last year throughout the world, compared with 16,998,551 metric tons in 1927. Of this total, 7,703,000 metric tons were produced in the United States, of which 3,890,767 were produced through Shell Petroleum Corp., against 2,694,312 metric tons in 1927, and 3,812,233 metric tons by Shell Oil Co., formerly Shell Co., of California, against 3,203,719 in 1927.

In Venezuela the group produced 7,125,339 metric tons of crude oil, against 4,497,713 in 1927, while in Dutch East Indies production totaled 3,971,045 metric tons, against 3,448,116 in the preceding year. Through Mexican Eagle Oil Co. and La Corona Co. production in Mexico totaled 1,422,660 metric tons, compared with 1,582,281 metric tons in 1927.

The report states: "Not only do we belong among the principal producers in nearly all countries where oil is extracted, but our products are also distributed over practically the whole world."

Rumanian Operations

With regard to the Group's operations in Rumania, the report states:

"Rumania's total net production in 1928 exceeded the record of 1927 by 16.6 per cent, aggregating 4,268,000 tons. This increase is mainly due to deeper layers having been opened up; 241,000 meters were drilled in 1928, against 247,000 in 1927 and 267,000 in 1926. Notwithstanding greater production the Rumanian oil industry was unable to yield a satisfactory profit. The two principal causes are the heavy fiscal burdens which the industry has to bear and the murderous competition which the Rumanian oil producers encounter in marketing their products, both in Rumania and elsewhere, not only from each other but also from the Soviet Government.

"Towards the close of the year a revision of the Mining Act of 1924 was taken in hand, which was completed in March last. Though in theory the unequal treatment of foreign and national capitals has been abolished, the new act still contains too much that is vague and uncertain to allow of an opinion being expressed as to the effect of its administration."

Export Association

In regard to the prices secured for the products of crude petroleum, Sir Henri states:

"The market for the various petroleum products has been subject to great fluctuations, with a falling tendency. Moreover, there is lack of system in the manner in which the various producers are supplying the nonproducing countries with oil and its products. Too often it is seen that one company is shipping to a certain country which could be supplied at less cost by another company more favorably situated geographically; consequently, unnecessary expenditure is incurred and the cost raised too high.

"With a view to overcoming these objections the Export Association has been established in America, which is trying by closer co-operation to arrive at a better distribution of the markets, which is primarily in the interests of the consumers."

Sir Henri reiterates that Royal Dutch-Shell interests have not withdrawn from their original position with regard to the purchase of Russian oil. He refers to the agreement entered into by one of the British distributing companies and the Soviet, and says:

Relations With Russia

"When an agreement was about to be entered into with the Russians for the purchase of certain quantities of oil f.o.b., we stipulated as a condition that part of the purchase price should be reserved for those from whom the fields producing this oil were taken at the time without any compensation.

"When the Soviet Government raised objections against this condition on the grounds of principle we attained our object by stipulating a purchase price below the universal purchase price. This rebate claimed by us and the other companies concerned with this purchase is now being reserved, and, as was known to the Soviet Government from the beginning of the negotiations, is destined for the legal owners of the respective oil fields.

"Anyone who sees in this a change of front is looking only at the words of a contract and not to its purport. It is sufficient to reply by expressing the hope that soon all purchasers of Soviet products will see to it that as a result of their contracts compensation is reserved for the rightful owners."

Sir Henri speaks of the overproduction of crude oil and attendant waste and the efforts made in the United States to adopt measures to control output. Referring to the American Petroleum Institute conference of last April, he says:

"It is a happy omen that the parties concerned have realized their great responsibility and appreciate the necessity to set aside personal interests, if need be at a sacrifice, in order to put an end to such a disordered state of affairs, which is likely to make a chaos of the whole industry."

Financial Operations

Regarding the financial operations of Royal Dutch Co. the annual report states:

"The extensive development of many of our group's activities led to our shareholders being given the opportunity at the end of last year to subscribe for shares in the company to a nominal value of 82,420,600 florins, at par, which amount was completely taken up by them.

"Further, it was deemed desirable to facilitate international dealings in our shares, and for this reason shares were placed at acceptable terms on the Zurich, Basel, Geneva, Brussels and Antwerp stock exchanges to a total amount of 2,600,000 florins. It was also with a view to such an introduction on the foreign stock exchanges that the extraordinary general meeting of shareholders held on December 21, 1928, passed a resolution to the effect that shares to a nominal value not exceeding 15,000,000 guilders should be issued under exclusion of the shareolders' preferential rights."

Striking a note of optimism, Sir Henri Deterding says of the future prospects of Royal Dutch:

"Oil is such a valuable product and the technical development of economic life has come to be so reliant upon the use of oil products that our expectations in respect to the oil industry in general cannot but be optimistic. As to our own company, we are convinced that, independent of the result of the negotiations for the rationalization of the oil industry, both in respect to production and as to distribution, it has a bright future before it."

Mexican Seaboard

Mexican Seaboard Oil Co. has listed on the New York Stock Exchange 278,877 shares of its no par capital stock. Of this amount 248,877 shares were recently offered to stockholders of record May 29 on the basis of one share at $32 for every four shares held. Rights to subscribe expire June 25. A total of 30,000 shares is to be sold to employes and its subsidiaries at not less than $32 a share upon terms and conditions to be fixed by the directors.

Sale of these 278,877 additional shares increase capitalization of Mexican Seaboard by $2,168,289, making the total capital stock account outstanding $9,669,681, consisting of 1,276,873 no par shares.

It is stated in the listing application that the company's subsidiary, Venezuelan Seaboard Oil Co., has contracted with Gulf Oil Co. whereby Gulf Oil Co. will drill three wells in Venezuela, the first of which, Gulf Seaboard Bernal No. 1, has been drilled to 4,000 feet. Company has done no other drilling on this property, but other companies are engaged in drilling wells.

The company has a total of 61 producing wells and four wells drilling. Production last year totaled 2,564,540 barrels, of which 2,247,237 came from Mexico, 120,035 from Texas and 197,268 from California.

Humphreys Corporation

Stockholders of Humphreys Corp. ratified the increase in capital stock to 600,-

INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Kennedy Building, Tulsa, Okla.

1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low	Par value	Stocks	For week ended June 14 Sales	Open	High	Low	Last	
$6.75	.45	2 7/16	.55	1½	.53	$5	Amer. Con. Oilfields	12,600	3/16	5/16	3/16	5/16	
..	..	7½	2¾	9½	3⅛	N.P.	Amer. Maracaibo	2,000	4	4	3⅝	3⅝	
..	..	2¾	1	4½	2¼	$10	Argo Oil	300	2⅛	2⅛	2⅛	2⅛	
85¼	60	40	20½	55	32¾	N.P.	British American	No sales.					
28⅜	9¼	28⅛	15½	4½	3⅞	25c	Carib. Syndicate (new)	700	3⅝	3⅝	3¼	3⅜	
..	..	58¾	40¼	90⅞	54	$20	Cities Service	No sales.					
..	..	95⅜	87	103½	94½	100	Cities Service, pfd.	No sales.					
..	..	8⅞	7⅜	9⅝	8⅞	10	Cities Service, pfd. B	No sales.					
3½	1⅜	3⅞	1⅛	3¼	76	1	Colombia Syndicate	300	1	1	1	1	
..	..	9¾	6⅜	8⅞	6¼	10	Consolidated Royal	300	7	7	7	7	
16	10	14⅞	9½	17½	9½	N.P.	Creole Syndicate	2,300	9¼	9¼	8½	9	
..	..	3	.50	3¼	.76	N.P.	Crown Central	600	1½	1⅝	1½	1½	
7⅞	6¾	12	4	33½	3¼	N.P.	Darby Petroleum	1,000	15½	15⅝	15⅛	15¼	
..	..	2½	74	2¼	1	N.P.	Derby Oil & Refining	5,500	8¼	8⅞	8	8½	
..	..	16¾	4	21⅛	7½	N.P.	Derby Oil & Refining, pfd.	No sales.					
..	..	2	.40	.53	.15	N.P.	Gilliland ctfs.	No sales.					
98	92	118	86¼	165	101⅛	$25	Gulf Oil Corp.	2,300	176	179⅛	172⅛	172⅛	
$3.00	.83	2½	.80	3⅜	1	5	Intercontinental Pet.	11,400	1¾	1⅞	1½	1⅝	
..	..	2¼	1⅛	3	1¼	N.P.	Kirby Petroleum	600	1¾	1¾	1⅝	1⅝	
12¼	5¾	10⅞	5⅛	9⅜	5⅛	25	Leonard Oil & Dev.	9,000	3¼	4⅞	3⅛	4½	
27	20	27½	20	43⅞	20	N.P.	Lion Oil & Refining Co.	1,000	34½	35¼	33	33	
46	30	59⅜	37	69⅛	48½	$25	Lone Star Gas	200	79	79¼	79	79	
2⅞	1	2⅞	.80	1⅞	.50	1	Magdalena Syndicate	2,900	½	⅝	7/16	7/16	
34	12½	52	12	48½	32	N.P.	Margay Oil	200	25¼	25¼	25¼	25¼	
8	5½	12⅛	5	8	2¾	N.P.	Mexico-Ohio Oil	No sales.					
1¾	1⅛	1½	1	1¾	.76	$1	Mountain & Gulf	200	⅞	⅞	⅞	⅞	
26	23	29¼	22¾	28⅞	19½	10	Mountain Producers	2,300	16⅞	17¼	16½	16¾	
6⅝	5	5⅞	4⅝	5⅝	4¼	5	New Bradford	200	3⅞	3⅞	3⅞	3⅞	
..	..	16	9¼	11⅞	7⅛	1	New Mex. & Ariz.	200	5¾	6	5¾	6	
..	..	12¾	9½	14¼	8½	N.P.	North Central Texas	100	10⅝	10⅝	10⅝	10⅝	
10⅛	5⅞	9⅜	3¼	6	2⅛	N.P.	Pandem	3,100	2¼	2¼	1⅞	1⅞	
12¼	11¾	12⅛	7	15⅝	8½	N.P.	Pantepec Oil	2,400	6⅛	6½	6⅛	6½	
22¾	12	13½	5⅛	7¾	4⅞	N.P.	Pennok Oil	No sales.					
17	8½	24⅜	7	18	4⅞	25	Red Bank Oil	No sales.					
30¼	12	15½	3½	12⅞	4⅛	N.P.	Reiter-Foster	1,400	5⅜	5⅝	5¼	5¼	
7	4½	7	4½	12	4⅛	N.P.	Ryan Consolidated	400	6⅝	6⅝	6⅝	6⅝	
10	7⅛	8	5¼	7¼	5½	$10	Salt Creek Cons.	600	3⅜	3⅜	3¼	3⅜	
35	24⅛	35½	27¼	35	23¼	10	Salt Creek Prod.	1,500	19	19⅛	18⅞	19	
6⅞	1¼	7	1¼	3½	1	5	Savoy Oil	No sales.					
27	7⅝	26½	17	22⅞	13	10	Tidal Osage	No sales.					
25¾	7⅝	23¾	15	21¼	13⅛	10	Tidal Osage, nonvoting	No sales.					
92	63½	92	63½	93¼	75	100	Transcontinental, pfd.	7,000	124¾	138	124¾	136	
8	4½	7⅜	4¼	9⅛	4¾	5	Venezuelan Petrol	2,600	4	4¼	4	4	
8⅛	5½	8	4¾	8¼	4⅞	$1	Woodley Petroleum	3,300	5⅛	5¾	5⅛	5¼	
6½	6	6	1¾	8⅜	2⅛	25	Y Oil & Gas (new)	200	2⅛	2	1⅝	1⅝	

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of New York Stock Exchange, Kennedy Building, Tulsa, Okla.

1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low		Listed capital	Par value	Stocks—	Div. rate	Last paid	For week ended June 14 Sales	Open	High	Low	Last	Change
32⅞	24¼	37⅝	27⅝	43⅞	27⅛	(sh)	922,075	N.P.	Amerada Corp.	50cQ	Oct. 31, 28	4,400	..	27¼	25½	26	—1½
74	39⅞	82⅛	35⅛	85	51⅛	(sh)	209,180	N.P.	American Republics Corp.	.....	.....	3,400	..	52¾	49	49	.....
60	44⅜	50¼	35	53⅜	37½		$57,260,300	$25	Associated Oil	50cQ	Dec. 31, 28	390	43½	43½	43	43	.....
128⅜	97	131⅜	104	66⅜	50		50,000,000	25	Atlantic Refining	25cQ	Dec. 15, 28	240,400	69	71⅜	68¼	69½	— ⅝
33½	23½	35½	20¾	53	20		35,194,000	25	Barnsdall Corp.	50cQ	Feb. 5, 29	36,000	42	43½	41⅛	41¼	—1⅛
94½	50	96¾	65	94⅞	68		20,785,400	100	General Asphalt	.....	.....	48,200	82	87⅜	83½	83½	+1⅜
72	50¼	175⅜	60¼	167	79		25,000,000	100	Houston Oil	.....	.....	3,000	80	84	80	80	+ ¼
34	19⅝	32¾	17⅝	38⅜	21¾	(sh)	959,457	N.P.	Independent Oil & Gas	50cQ	Jan. 31, 29	7,000	36	36½	35½	35½	— ⅜
12¾	7½	12⅛	7⅝	39⅝	9		8,203,080	$10	Indian Refining	.....	May 31, 24	92,100	45	50½	45	45	—1⅜
25⅞	16½	37¾	20½	39⅛	27⅜	(sh)	3,992,122	N.P.	Lago Oil & Transport	.....	May 1, 27	24,700	28	35½	28¼	34	+4⅞
19⅞	12	18⅛	10	19¾	9⅜	(sh)	1,237,078	N.P.	Louisiana Oil Refining	.....	.....	11,800	13	13½	12⅞	13	— ⅛
28	16½	22¾	12	25½	12½	(sh)	330,000	N.P.	Maracaibo Oil	.....	.....	200	14⅛	14⅛	14	14	—1¼
63⅜	49¼	58½	31	49¾	33	(sh)	2,316,692	N.P.	Marland Oil Co.	.....	Mar. 31, 27	14,800	34¾	36	34	34¼	.....
13¾	6	9¼	3	73	4⅝	(sh)	945,939	N.P.	Mexican Seaboard	.....	Dec. 15, 20	2,000	41	42¾	37½	38½	—3½
37	20½	39⅜	25½	44½	25⅛	(sh)	1,357,461	N.P.	Mid-Continent Petroleum	50cQ	Feb. 15, 29	9,100	35⅛	35¼	33¾	33¾	—1⅝
104¼	90	105	97	120½	103¼		$6,718,000	$100	Mid-Continent Petroleum pfd.	$1.75Q	Sept. 1, 28	No sales.					
2½	½	3¾	1⅝	7⅜	2⅜		24,298,850	10	Middle States	.....	July 1, 23	7,700	4	4	3¾	4	+ ⅛
76½	56⅛	65⅞	40⅛	54⅞	38¼		$48,807,400	$50	Pan American P. & T.	.....	Oct. 20, 27	1,300	58½	59¾	57¾	57⅞	— ⅝
78⅜	56⅞	66⅜	40¼	58⅞	37¾		121,097,900	50	Pan American P. & T. B.	.....	Nov. 15, 24	113,200	60⅞	63⅜	60	60⅛	—1⅞
46	30	37⅞	16¾	28⅜	15½	(sh)	400,000	N.P.	Pan American Western B.	.....	Jan. 30, 27	No sales.					
32	4½	18⅞	8	21¾	11½	(sh)	198,770	N.P.	Panhandle P. & R.	.....	.....	1,000	10½	10½	9⅝	9⅝	— ⅞
99⅜	51	83	54	108	70		$2,935,200	$100	Panhandle P. & R. pfd.	.....	July 2, 23	100	62	62	62	62	.....
57⅜	40	60¼	36¼	53⅞	35¼	(sh)	2,406,796	N.P.	Phillips Petroleum	37½cQ	Jan. 2, 29	6,100	39¾	40	38	38¼	—1⅜
....	....	1⅛	½	5¼	½		$29,622,925	$25	Pierce Oil Corp.	.....	.....	4,900	2¼	2¼	2	2¼	.....
7	2¼	5½	2½	7	3½	(sh)	2,500,000	N.P.	Pierce Petroleum	.....	.....	900	4¼	4⅜	4½	4½	— ⅛
60¼	48	55½	45⅝	68	46		60,000,000	25	Prairie Oil & Gas	.....	Aug. 31, 27	8,100	57½	58½	56¾	57⅛	— ⅜
137½	122½	190	130⅜	280	172		$101,250,000	$25	Prairie Pipe	75cQ*	Mar. 31, 29	5,300	60	60	58½	59½	— ½
20⅜	11	33⅞	16¾	29⅞	16		$37,450,850	$50	Producers & Refiners	.....	Sept. 15, 23	1,900	19½	19½	18¼	19⅜	—1
41⅜	30⅜	50	36⅞	49⅝	41		2,845,350	50	Producers & Refiners pfd.	.....	May 1, 25	310	44	44	42½	42½	—1½
31	25¼	33½	25	31⅝	19		75,959,350	25	Pure Oil Co.	25cQ	Dec. 1, 28	31,100	28⅛	28⅛	28	28	— ½
27½	22	28⅝	25⅜	56	23		47,025,000	$25	Richfield Oil	.....	Nov. 15, 28	12,900	43	43	40½	41⅜	—1⅜
57⅜	47⅜	54½	44¼	64	44⅝	(sh)	611,303	13.40	Royal Dutch, N. Y. shares	50cQ	Jan. 10, 29	7,500	54¼	55½	54¼	54⅝	+ ⅜
48⅝	40½	47⅞	41⅜	57½	40⅝	(sh)	£30,000,000	£1	Shell Transport & T.	$1.45	July 23, 28	100	47	47	47	47	+ ½
31	24	31¾	24⅝	39¼	23¼	(sh)	20,000,000	N.P.	Shell Union Oil	35cQ	Dec. 31, 28	14,900	28¼	28⅞	27⅝	28	— ¼
25⅝	15⅛	26⅜	14¼	27¼	18⅛		$8,357,000	$10	Simms Petroleum	10cQ	Dec. 15, 28	21,900	32⅝	33⅞	32¼	33	— ⅛
24⅞	16⅜	22⅜	15	46⅜	17⅜	(sh)	4,501,915	N.P.	Sinclair Consolidated	.....	.....	69,100	38⅝	39⅜	37⅜	37⅜	— ¼
99½	90	104½	97	110	102½		$16,604,600	$100	Sinclair Consolidated pfd.	$2Q	Nov. 15, 28	500	109	109¼	109	109	+ ¼
37⅛	26⅝	37⅜	24⅛	42⅝	25		27,396,590	25	Skelly Oil Co.	50cQ	Dec. 15, 28	19,100	41½	42⅞	40½	40⅝	—2⅛
63⅝	51½	60⅜	50⅜	80	53	(sh)	12,594,098	N.P.	Standard Oil of California	65½Q	Dec. 15, 28	25,900	76¼	76⅜	73⅜	74¼	—1⅜
46⅜	37½	41⅜	35⅛	59⅜	37¾		$611,120,700	$25	Standard Oil of New Jersey	25cQ*	Dec. 15, 28	56,400	58½	59¾	57⅝	58	—1¼
47¼	30⅜	34⅛	29¾	44¼	28¾		427,973,275	25	Standard Oil of New York	40cQ	Dec. 15, 28	25,900	40½	40⅞	39⅜	39½	—1
41⅜	30⅛	34⅞	30	77	31½	(sh)	1,206,073	N.P.	Sun Oil	25cQ	Dec. 15, 28	110	104	104	102½	102½	— ½
5¼	1	6½	3⅛	14¼	2½	(sh)	1,267,000	N.P.	Superior Oil Corp.	.....	Dec. 20, 20	61,000	9	9⅛	7⅞	7⅞	—1¼
58	48	58	45	74¾	50		$211,076,650	$25	The Texas Corporation	75cQ	Jan. 1, 29	19,100	62⅜	73	71½	72½	.....
19½	12	18⅞	12	26⅝	12⅛		8,380,340	10	Texas Pacific Coal & Oil	.....	Jan. 3, 28	4,100	18	18⅝	17⅛	17⅜	— ⅜
39¼	27	29⅛	19	41½	19⅝	(sh)	2,168,410	N.P.	Tide Water Oil Co.	20cQ	Dec. 15, 28	8,200	39	39¾	37¼	37¾	—2
103	87¼	90⅛	85	100⅛	86		$20,705,200	$100	Tide Water Oil Co. 5% pfd.	65½cQ	Dec. 15, 28	500	96	96	95	95	—1⅜
27	20⅞	19⅛	15¾	25	14¾	(sh)	4,796,158	N.P.	Tide Water Associated	.....	Aug. 1, 27	28,400	23⅛	22⅞	21⅝	21⅝	—1⅛
5½	3	10⅜	3⅝	14⅜	7¼	(sh)	3,742,029	N.P.	Transcontinental Oil	.....	.....	164,700	12	12⅜	10½	10⅞	—1⅛
58⅜	37¼	56½	39⅝	58	42⅜		$94,798,100	$25	Union Oil of California	50cQ	Nov. 10, 28	3,200	48¼	48⅜	47½	47⅝	—1⅛
120⅜	84¼	127½	94	128⅛	110		31,061,200	100	Union Tank Car Co.	$1.25Q	Dec. 1, 28	5,000	137	146¾	130	141	+10
30⅛	23½	34½	24½	44⅞	26	(sh)	356,000	N.P.	Warner Quinlan	50cQ	Jan. 2, 29	1,100	31½	32⅛	30¾	30¾	—1
29¾	25⅛	27½	20	38	20⅛	(sh)	490,000	N.P.	White Eagle Oil & Refining	50cQ	Jan. 20, 29	4,200	35	35⅛	34½	34½	— ½
									Wilcox Oil & Gas	.....	.....	5,400	21⅜	23⅞	21⅛	21⅛	—1⅜

*Also extras. †Ex-dividend.

STANDARD OIL STOCKS ON NEW YORK CURB

21	16	21⅝	17⅞	22⅜	14⅞		£4,126,460	£1	Anglo-American Oil	.....	June 6, 28	1,500	14⅝	15	14½	14½	— ⅛
....	....	3¾	¾	5	1¼	(sh)	500,000	N.P.	Atlantic Lobos	.....	.....	2,000	1¼	1⅝	1¼	1⅝	.....
76	65	69	50	56½	44½		1,000,000	25	Borne Scrymser	$18.A.	Oct. 15, 28	No sales.					
59½	42	60	45	76	53		10,000,000	50	Buckeye Pipe Line	$1Q	Dec. 15, 28	200	69	69¾	68	68	—2¼
82½	65	126	76½	161	117		3,000,000	25½	Chesebrough Mfg.	$1Q	Dec. 28, 28	100	164¾	164¾	164¾	164¾	— ¼
25⅞	17½	22⅝	16¼	23	16		36,057,840	10	Continental Oil	.....	Dec. 15, 27	14,500	20½	21¼	20	20¾	— ¼
137	102	137	89	114	67		1,500,000	50	Cumberland Pipe Line	$1A	Dec. 15, 28	50	69	69	69	69	.....
63¾	43	68½	47	88	64⅛		5,000,000	100	Eureka Pipe Line	$1Q	Nov. 1, 28	50	60	61¾	61¾	61¾	+1¾
32½	9⅞	13½	3½	13	4¼		16,000,000	100	Galena Signal Oil	.....	June 30, 25	100	5	5	5	5	.....
68½	52	68½	54	114¾	59¼		73,117,577	25	Humble Oil & Refining	30cQ*	Jan. 1, 29	7,000	117⅛	119⅜	115¾	116¼	— ¼
144½	125½	182	123¾	290½	176½		20,000	100	Illinois Pipe Line	10%S.A.	Dec. 15, 28	50	315	315	315	315	—2
....	....	64¾	37¾	104	56¾	(sh)	6,458,267	N.P.	Imperial of Canada	25cQ	Dec. 1, 28	8,900	27½	27¾	26¾	27¼	— ½
72½	58	94½	61	91⅞	74⅜		$5,000,000	$50	Indiana Pipe Line	$1Q	Feb. 15, 29	800	95¾	95¾	94¾	94¾	—1
35½	28¾	39	28¼	55	35	(sh)	7,123,444	N.P.	International Petroleum	25c	Nov. 30, 28	7,400	48¼	49¼	47⅝	47⅝	— ⅞
20¾	12½	24	13½	32⅜	19⅜		$6,363,350	12.50	National Transit Co.	25c	Dec. 15, 28	300	22⅜	22⅞	22⅝	22⅞	+ ⅛
51½	27¼	44½	31¼	75	38½		5,000,000	100	New York Transit	.....	July 15, 26	100	13	13	13	13	.....
80½	64	100	70	69	56½		2,000,000	50	Northern Pipe Line	$3S.A.	Jan. 2, 29	100	55	55	54⅛	55	.....
67¾	55⅝	67⅞	52	84	58½		60,000,000	25	Ohio Oil Co.	50cQ*	Dec. 15, 28	1,500	74⅞	75	73½	73½	—1½
24¾	15	39	12	84	28		10,000,000	25	Penn Mex. Fuel	$1.25	Dec. 15, 28	No sales.					
220	84½	201½	175½	220	167		4,000,000	100	Solar Refining	$5S.A.	Dec. 20, 28	100	40	40¾	39⅛	39⅛	— ⅞
74½	61½	27¼	15½	19	15		1,000,000	10	Southern Pipe Line	$2	Dec. 1, 27	200	20¼	20⅜	20	20	— ¼
50	34½	41½	35	71⅞	36¾		2,000,000	25	South Penn Oil	50cQ	Dec. 31, 28	800	53½	53½	52	52	—1½
56	47½	83	55½	102	70		3,500,000	100	Southwest Pa. Pipe Lines	$1Q	Oct. 1, 28	50	63	63	63	63	—1¾
70½	60½	81½	64⅝	95⅞	70⅞		228,415,463	25	Standard Oil of Indiana	61½Q	Dec. 15, 28	14,600	56⅞	57	55¼	55⅜	—1¼
36½	16½	20⅞	14⅝	37¾	15		8,000,000	25	Standard Oil of Kansas	.....	June 16, 24	3,700	21½	22⅛	21⅛	22	+ ¾
134⅜	108	130	111½	179¾	122¼		17,012,559	10	Standard Oil of Kentucky	$1Q	Dec. 31, 28	3,600	38	38⅜	36¼	36¼	—1⅝
51⅛	42	49½	40	54⅞	39⅞		4,559,850	25	Standard Oil of Nebraska	63cQ	Dec. 20, 28	100	47⅝	47⅝	47⅝	47⅝	.....
372	288	87½	72	134	71		14,000,000	25	Standard Oil of Ohio	62½cQ	Jan. 2, 29	800	121½	124	121⅜	121⅜	—1⅛
21	15	21	14½	23½	16		861,000	25	Swan Finch Co.	.....	Nov. 1, 19	No sales.					
109⅜	90¼	....	....	111	72		125,619,000	25	Vacuum Oil	75cQ	Dec. 20, 28	1,800	115	116⅝	114¾	115	—1

*Also extras.

000 shares of no-par value from 400,000. Stockholders of record June 8 have right to subscribe to 137,775½ additional shares in ratio of one share at $10 for each two shares held. Subscriptions will be payable June 25.

Tide Water Oil

Tide Water Oil Co. declared the regular quarterly dividend of 20 cents on the common, payable June 29 to stock of record June 17.

Gulf Oil

Gulf Oil Co. declared regular quarterly dividend of 37½ cents, payable July 1 to stock of record June 20.

Arkansas Natural Gas

Arkansas Natural Gas Corp. declared the regular quarterly dividend of 15 cents on preferred stock payable July 1 to stock of record June 20.

Shaffer Oil & Refining

Shaffer Oil & Refining Co. declared regular quarterly dividend of $1.75 on preferred, payable July 25 to stock of record June 29.

Mexican Petroleum

Mexican Petroleum Co. declared the regular quarterly dividends of $3 on common and $2 on preferred, both payable July 20 to stock of record June 29. April 20 the company paid a special dividend of $40 on common in addition to the regular quarterly dividends.

National Refining

National Refining Co. declared regular

(Continued on Page 162)

ROCKY MOUNTAIN AREA

(Continued from Page 140)

The only operation in the Wellington Pool in Larimer County is the Continental Oil Co.'s No. 1 Fleming, SE NW, Section 6-9n-68, which is drilling at 3,350 feet. In the Canon City district in Fremont County, the Continental is starting a well in its No. 1 Smelter, NW SE, Section 8-19-70, which is a little to the southwest of the active area.

The Midwest Refining Co.'s test on the Chimney Creek Dome in Routt County, is to be drilled in the SW NE NW, Section 4-7n-86. The footage is 830 feet from the north line and 1,520 feet from the west line. The location is one-fourth of a mile northeast of the well drilled several years ago by the Plateau Oil Corp. This well had a show of oil at 875 feet and 4,000,000 feet of wet gas in the Frontier at 945 feet. It was abandoned in the Dakota at 1,320 feet. At that time the underlying Morrison and Sundance sands had not been proven at Iles and on the Moffat Dome. The Midwest well will test these horizons. The operation is to the north of Tow Creek where the Texas Production Co., has a number of wells producing from the Mowry shale. The Texas Production Co. is drilling a Sundance test at Tow Creek in its No. 4 Belle Dennis, NE SE, Section 7-6n-86, which is coring at 5,015 feet and several hundred feet deeper than it was expected it would have to go.

Moffat County Gas Well

In Moffat County, the Mountain Fuel Supply Co.'s No. 1 State-Reiter-Foster, SE cor. Section 16-12n-100, on the Hiawatha Dome, has been completed at 3,585 feet as a 1,000,0000-foot gas well. The hole had been so reduced in size that it could not be drilled any deeper. A 3½-inch liner was run to the bottom. The well was started in 1927 by the Reiter-Foster Oil Co. and had a water sand at 2,174-2,215 feet. This was supposed to be the same sand which yielded large quantities of gas higher up on the structure. A deal was made whereby the Ohio Oil Co. took over the operation. Subsequently it was transferred to the Mountain Fuel Supply Co., the producing concern for the gas line system from Hiawatha into Utah. The well cut several sands below the water sand which showed oil or gas in small quantities, one sand making about 5 bbls of oil and 1,500,000 feet of gas. These horizons have never been tested in any other well and the results indicate that the lower sands are productive and extend over a larger area than the big gas sand to which the wells have been drilled. Also, the show of oil holds out the hope that at some other location, or deeper horizon, the structure may become an oil producer. On the Iles Dome, the Texas Production Co.'s No 36 Lloyd, SE cor. Section 21-4n-92, which proved a disappointment in the Sundance, was plugged back to 3,640 feet and shot with 20 quarts in hopes of making it commercial in the Morrison. It is now cleaning out after the shot. The Midwest Refining Co.'s No. 24-SD Parkinson, SE NW Section 22-4-92, which was drilled to 3,570 feet, 10 feet into the Sundance, where it began to show water, was plugged back to 3,564 feet in an effort to save the oil in the top of the sand. The fluid rose 3,400 feet in the hole of which about 800 bbls. was oil and the remainder water. After bailing down, it filled 1,500 feet over night. Thomas McLaughlin and others' No. 1 Williams, NW SW, Section 2-3n-92, which is testing the area south of the fault, is drilling at 3,650 feet in sandy shale just above the Dakota with a show of live oil. It is through the Mowry. The Sundance is the objective. The Texas Production Co.'s No. 1 Berlin, SW NE, Section 19-12n-100, Bartram Dome, 3 miles west of the Hiawatha Dome, is spudding at 96 feet. This is a test in the Tertiary formations.

The Midwest Refining Co.'s No. 21-X Rich, NE SW NW, Section 9-6n-80, on the Buffalo Creek Dome in Jackson County, 20 miles southwest of the Continental's operation at Walden, commenced spudding May 28 and is drilling at 145 feet.

In Adams County, east of Denver, Nettie M. Slatt, and others' No. 1 Hills, SE cor. Section 27-3s-64. Watkins district, is spudding. It starts in a 24-inch drive pipe for a 5,000-foot test.

The Marlad Oil Co.'s No. 1 Pipe Springs, NE SE, Section 27-27-49, Bent County, is drilling at 4,070 feet.

MONTANA

The bailing test on the United States Petroleum Co.'s well northwest of Great Falls failed to show a commercial producer. After running the bailer about 30 times, it was found the water could not be exhausted and the attempt was abandoned. There was some oil on top but as the water came in too fast to be bailed out, the amount of oil was not determined.

In the Sunburst Field, the Dakota-Montana has a producer good for 60 bbls. on Section 19-35-1, finding the Ellis sand at 1,555 feet. There was no Sunburst sand found in this well. On Section 29-35-2, the Fifty Six Oil Co. has a good producer in a gas area. This well went into the Ellis sand at 1,491 feet and found a small showing of oil instead of gas. A light shot of 20 quarts resulted in a flow that made 40 bbls. in 24 hours. The company will drill a second well at once.

Near Dunkirk, on Section 10-31-1, W. J. Mahan and others have resumed work on the deep test shut down during the winter. This well is standing at 1,900 feet and the owners expect to drill it to the Devonian shales which have held showings of oil in northern Montana in several wildcats and the present test is thought to be well located.

On the Bowdoin Dome, Phillips County, north central Montana, the well of the Big Dome Oil Co. on Section 1-32-32, is drilling at 2,348 feet and expects a sand within 50 feet. The Dakota-Montana Oil Co. is also interested in this structure and in case the Big Dome opens a gas flow, the Dakota-Montana line is expected to be laid this coming summer. Wildcats drilled on the Bowdoin Dome have found gas in the past.

WYOMING

Wyoming had three completions reported this week, all of them being in Salt Creek on leases of the Midwest Oil Co. These were No. 13-SD-3, SW, Section 26-40-79, completed as No. 13-M at 2,531 feet in the Morrison, with an initial production of 46 barrels; No. 16-SD-2, SW, Section 26-40-79, completed in the second Sundance at 2,825 feet for 108 barrels initial; and No. 6-SD 1, SE, Section 35-40-79, deepened and recompleted at 2,525 feet with an initial production of 77 barrels.

The Prairie Oil & Gas Co.'s No. 1 Baird, NE NE SW, Section 22-31-81, on the Clark Dome in Natrona County, 20 miles southwest of Casper, attracted considerable interest this week when it encountered a flow of 5,000,000 feet of gas in the second Wall Creek at 725 feet. This quantity of gas at so shallow a depth proves the structure to be closed and holds out hope of finding oil or gas in lower horizons. Should it prove to be a gas structure it is sufficiently near Casper to be commercially valuable. If oil is found, the Kinney-Coastal Oil Co.'s Bolton Creek line runs within a half a mile of the well. The 12½-inch casing was cemented on top of the sand and the gas will be bradenheaded off and used for drilling purposes.

The White Eagle Oil & Refining Co., has contracted for the production of the Bessemer Oil Co. and part of the Empire Oil Co.'s output on the Poison Spider Dome west of Casper. The company recently was given a contract for 500,000 gallons of road oil by the state highway department and as the Poison Spider crude is used principally for that purpose it is presumed that it will be used in filling this order.

The Midwest Refining Co. has taken over the gathering system in the La Barge Field formerly owned by the California Petroleum Co. and is now handling the output of the field. There is approximately 200,000 bbls. of oil in storage in the field and at the loading station at Opal. The oil is under contract to the Utah Oil Refining Co. and it is expected that shipments will be materially increased this summer. One completion was reported in the La Barge Field, this being the California Petroleum Co.'s No. 5-L, Section 34-27-113, completed at 786 feet with an initial production of 36 bbls. W. D. Newlon has resumed drilling on his No. 1, SW, Section 12-26-113. It was shut down last winter at 2,157 feet with the 6⅝-inch on bottom.

In Lincoln County, the Midwest Refining Co., is preparing to resume on its Little Grey River test in SE Section 25-37-117, on which operations were suspended for the winter at 769 feet. The same company's Waterfall test in SE SW, Section 35-22-115, is drilling at 3,285 feet in hard gray lime, the formation changing from red sandy shale in which horizon it had considerable water.

In Sweetwater County, the Producers & Refiners Corp.'s No. 1, NE SE, Section 26-20-104, on the North Baxter Basin Dome, joint with the Marland Oil Co., is drilling at 4,036 feet in hard shell, and is believed to be in close proximity to the Sundance. Mountain Fuel Supply Co.'s No. 1 Tucker, C NW SE, Section 18-13-99, Alkali Creek Dome, which was taken over from the Prairie Oil & Gas Co., is resuming and is drilling out cement at a total depth of 2,480 feet. It was drilled to this depth last winter and was said to have had a good show of gas and to be giving indications of coming in as a gasser. It was decided to wait until spring to bring it in and after cementing the 8¼-inch on bottom operations were suspended. The same company's No. 1 Newberry, SE cor. Section 13-12-100, joint with the Somir Petroleum Co., cemented the 12½-inch at 1,460 feet and is waiting for the cement to harden. Its No. 1 Joseph Hay, Section 26-17-104, is straightening a crooked hole at 135 feet, and its No. 1 Murphy, Section 26-17-104, both in South Baxter Basin, is also straightening a crooked hole at 550 feet. Mountain Fuel Supply Co.'s No. 1 Humphreys, Section 2-12-101, Canon Creek, cemented the 7⅝-inch at 3,750 feet, and its No. 1 Arnold, Section 24-19-104, is drilling at 3,050 feet.

In Carbon County, the Ohio Oil Co.'s No. 10 Dickson, Section 34-20-78, Rock Creek, is drilling at 2,770 feet. The Producers & Refiners' No. 1, NE NE, Section 14-25-89, Sherrard Dome, is drilling in hard lime at 3,212 feet, and its No. 3, Section 2-19-88, Hatfield Dome, is filling with rock to redrill. Total depth is 4,003 feet. Same company's No. 7, Section 7-26-89, Wertz Dome, cemented the 6¼-inch at 3,585 feet, and its No. 8, same section, is standing cemented at a total depth of 3,718 feet.

In Fremont County, the Producers & Refiners' No. 2, Section 9-32-95, Sand Draw, which has been shut down for some time at 3,642 feet, is resuming and is cleaning out 2 feet off bottom. Same company's No. 7, Section 14-32-95, is bottomed at 2,917 feet and cleaning out at 2,650 feet. Its No. 2, SE NW, Section 33-34-92, Muskrat Dome, 1½ miles northwest of the discovery well, has commenced spudding, and No. 3, Section 1-33-92, 1½ miles southeast of the discovery, is rigging up. The Kinney-Coastal Oil Co.'s No. 1 Dykeman, SE SW, Section 22-3n-1w, Pilot Butte, is bottomed at 2,510 feet and underreaming the 10-inch at 2,490 feet.

Other Operations

In Big Horn County, the Producers & Refiners' No. 3, NW NW, Section 24-56-98, on the Garland Dome, joint with the Kinney-Coastal Oil Co., was delayed at 3,060 feet by a lost core-barrel which has been recovered and coring is in progress in the top of the Sundance. The well is making some gas through a hole full of heavy mud put in to hold down the pressure. The Garland Dome has a closure of approximately 2,200 feet, or 700 feet more than Salt Creek and some big gas wells have been drilled in. The Producers & Refiners' well is 200 feet lower than the Utah Southern Oil Co.'s gasser and 400 feet lower than the Ohio Oil Co.'s No. 2 Cross Gas. The two gas wells have a pressure of 1,400 pounds to the inch. The Producers & Refiners' well, being lower, is looked upon as having good oil possibilities, if not in the lower Sundance, in the Embar or Tensleep, the producing horizon at Oregon Basin. The Ohio Oil Co.'s No. 1 Easton, Section 33-56-97, Byron Dome, is drilling at 1,800 feet.

In Hot Springs County, the Texas Production Co.'s No. 1 NW SW, Section 23-45-100, on the Skelton Dome, is running the 10-inch at 2,490 feet. This well is reported through the second Wall Creek, which contained water. The Midwest Refining Co. is preparing to drill a test on the Wagonhound structure in Hot Springs County in its No. 8, SE NW SE, Section 6-44-98. This structure has had several tests, but none of these was considered to have condemned the structure.

In Park County, the Producers & Refiners' No. 1 Rand, SE NW, Section 7-57-97, on the South Frannie, or Sage Creek Dome, is drilling at 2,680 feet in lime, and its No. 1 Hill, NE SE, Section 7-57-97, is standing with the 12½-inch cemented at 596 feet. The California Exploration Co.'s No. 2 Pitchfork, NW NE, Section 14-48-102, is drilling at 440 feet. The Midwest Refining Co.'s No. 36 Rosenberg, SE cor, NW, Section 25-58-98, Frannie Dome, is drilling at 2,708 feet in hard lime with the hole full of water. It topped the Embar at 2,460 feet, and it is probable that it is now in the top of the Tensleep.

In Johnson County, the Carter Oil Co.'s No. 1 State, SW SW, Section 16-48-82, Billy Creek Dome, has again cemented off the heaving bottom sand at a total depth of 3,240 feet, and it will be allowed to stand 60 days. In the meantime the company is preparing to go back into its No. 1 First National Bank, SE, Section 17-48-82, which was the discovery well, completed in the Frontier in 1923 as a 58,000,000-foot gasser, to deepen it.

ROCKY MOUNTAIN FIELDS
Daily Average Pipe Line Runs Week Ending June 15

WYOMING	
Salt Creek	31,040
Frannie	30
Big Muddy	2,260
Oregon Basin	4,090
Byron	20
Dutton	30
Elk Basin	780
Ferris	30
Grass Creek	2,350
Greybull	20
Hamilton	1,000
LaBarge	1,770
Lance Creek	250
Lost Soldier	3,300
Osage	620
Poison Spider	820
Rock River	2,270
Rex Lake	120
Lander	140
Simpson Ridge	50
Teapot Dome	40
Mule Creek	1,070
Total	52,100
MONTANA	
Cat Creek	1,410
Kevin-Sunburst	6,860
Pondera	3,150
Lake Basin	90
Total	11,510
COLORADO	
Moffat	1,637
Fort Collins	2,518
Florence	962
Iles	1,956
Tow Creek	517
Boulder	25
Rangely	100
Total	7,715
NEW MEXICO	
Artesia	921
Cap Rock (Maljamar)	403
Hogback	170
Rattlesnake	1,126
Table Mesa	....
Total	2,620
Grand total	73,945

FREEZING POINT METHOD GIVES MOLECULAR WEIGHT

(Continued from Page 147)

tion. Agitation is kept at as uniform a rate as possible.

Continue the agitation until a constant temperature reading has been obtained (t_1) with the Beckmann thermometer, for two or more 30-second intervals. This constant reading is taken as the freezing point of benzene. One c.c. of the solute is pipetted into the side arm of the freezing point tube under the same conditions, and the same process repeated as used

in determining the freezing point of the solvent. Call this constant reading (t_2).

The depression of the freezing point is that number of degrees represented by the differences between the two constant readings. Namely, that of the benzene alone, and that resulting from the total amount of solute added. Several more 1-c.c. portions of the solute are added to the solvent and the depression of the freezing point determined. Check results for the average molecular weight between the successive additions of the solute should not vary more than one or two digits to the left of the decimal point. The average of the two results which check the closest is taken as the average molecular weight.

Theory of the Method

The lowering of the freezing point, due to the presence of a dissolved substance is directly proportional to the lowering of the vapor pressure. Pure solid solvent crystallizes out at the temperature at which the vapor pressure of the solid and the solution are the same. The constant temperature at which the ice and liquid are in equilibrium, is taken as the freezing point of the liquid.

The molecular weight of a solute when the depression of the freezing point has been determined by the above method is calculated by substituting the proper values in the following formula:

$$M = K\frac{100 \times g}{A \times G} \qquad (1)$$

This formula holds only for dilute solutions.

Experimental Evaluation of K

The general formula is:

$$M = K\frac{g}{AG} \qquad (2)$$

Where:
M = Molecular weight
K = Constant for solvent
g = Weight of solute in grams
A = Depression of freezing point
G = Weight of solvent in grams.

By transposition:

$$K = \frac{MAG}{g} \qquad (3)$$

And:

$$A = K\frac{g}{GM} \qquad (4)$$

It has been found that when 0.625 grams of a substance having the molecular weight of 123 are dissolved in 20 grams of benzene, the freezing point of the solution was found to be 1.301 degrees lower than that of the solvent. From this we can calculate the constant K for benzene by substitution in Equation 3.

$$K = \frac{123 \times 1.301 \times 20}{0.625} = 5{,}120.0$$

The constant calculated above bears a simple relation to what is called the molecular depression of the freezing point. This quantity is the depression of the freezing point produced by dissolving 1 gram molecular weight of substance in 100 grams of the solvent.

If we take Equation 4, and make g = M, and G = 100, we have

$$A = K\frac{M}{100M} = \frac{K}{100}$$

The value of this quantity for benzene is 51.2 and is known as the molecular depression of the freezing point for benzene. To use this value for K, substitute observed values in Equation (1).

Theoretical Derivation of K

Looking at this problem from a thermodynamic standpoint, we find in Equation (2)

$$K = \frac{RT^2}{q} \qquad (5)$$

Where:
K = constant called (Raoult's constant)
R = constant from gas law
T^2 = absolute temperature of freezing point of solvent expressed as degree Kelvin.
q = latent heat of fusion of one gram solvent.

The derivation of K in the above equation, will not be gone into, but may be obtained from the text books of Physical Chemistry listed below.

By transposition in the gas law:

$$PV = NRT \qquad (6)$$

$$R = \frac{PV}{NT} \qquad (7)$$

Where:
P = Atmosphere pressure in mm. of mercury.
V = Volume of gas in cu. cm.
N = Number of mols present.
T = Absolute temperature degrees Kelvin.

R, in Equation (7), may be determined experimentally. This has been done by several and found to be a constant (1.985).

K, then for any given solvent can be calculated by substitution of values for figures in Equation (5).

Example (for benzene)

$$K = \frac{1.985 \times (273.1 + 5.485)^2}{30.08} = 5{,}120.0$$

With K established for a given solvent, the molecular weight of a solute may be determined by substituting experimental data in the formula (2).

Figure 1, gives the structural details of the freezing point tube and air jacket, as used in the determination of molecular weights.

Distinction Between Equations

Equation (1) is the one in common use. This is due to the fact that the constant K for a great many substances has already been determined, and may be found in text books listed below. In these determinations K is the constant resulting from the addition of one gram molecular weight of substance in 100 grams of solvent. This is $\frac{1}{100}$ of the value of K in Equation (2).

Equation (2) is the form used in the determination of molecular weights in physical chemistry. Both equations give identical results.

Example

In the example the average molecular weight of a lean oil is determined, using benzene as a solvent.

The weight of the solvent is determined, as previously described, by multiplying the specific gravity taken at 42 degrees Fahrenheit by the volume of the sample (100 cc.) which was pipetted at the same temperature. This gives the weight of the solvent = 100 × 0.8937 = 89.37 grams.

The solute was pipetted at 0 degree Centigrade (32 degrees Fahrenheit), into the solvent, in successive 1 cc. portions. The weight of the solute added each time was 1 × 0.8428 = 0.8428 grams.

The depression of the freezing point of the pure benzene on the addition of the solute was, respectively, 0.265 degree Centigrade, 0.510 degree Centigrade, 0.770 degree Centigrade and 1.040 degrees Centigrade.

Calculation by substituting observed values on equation

$$M = K\frac{100\,g}{AG}$$

Where:
K = (for benzene) 51.2.
g = 0.8428, 1.6856, 2.5284 and 3.3712.
A = 0.265°C., 0.510°C., 0.770°C., and 1.040°C.
G = 89.37 grams in all cases.

(1) $M = 51.2 \times \frac{100 \times 0.8428}{0.265 \times 89.37} = 181.9$

(2) $M = 51.2 \times \frac{100 \times 1.6856}{0.510 \times 89.37} = 189.1$

(3) $M = 51.2 \times \frac{100 \times 2.5284}{0.770 \times 89.37} = 188.0$

(4) $M = 51.2 \times \frac{100 \times 3.3712}{1.040 \times 89.37} = 185.5$

The molecular weight calculation for the second and third additions of solute check, within the prescribed limits, so the average of these two results is taken as the average molecular weight of the solute (lean oil) M = 188.6.

PANHANDLE FIELDS

(Continued from Page 76)

McGaha Oil Corp.'s No. 2 Taylor was drilled to a total depth of 1,480 feet, topped the pay at 1,475 feet and had an initial production of 135 bbls. Gohlke's No. 5 Wilson was drilled to a total depth of 1,572 feet, topped the pay at 1,565 feet and had an initial production of 32 bbls. oil and 12 bbls. water. Kemrow Production Co.'s No. 4 Campbell was drilled to a total depth of 720 feet, topped the pay at 708 feet and had an initial production of 3 bbls. Kruger & Clark's No. 1 Turbeville was dry and abandoned at 1,550 feet. Long and others' No. 1 Thorn was dry and abandoned at 2,202 feet. Omohundro and others' No. 2 Rutty was drilled to a total depth of 904 feet, topped the pay at 895 feet, and had an initial production of 12 bbls. oil and 2 bbls. water. Pandem Oil Corp.'s No. 3 Wallace was dry and abandoned at 1,809 feet. Panhandle Refining Co.'s No. 1 Orton and others was dry and abandoned at 1,792 feet. Bridwell Oil Co.'s No. 1 Logan and others had an initial production of 503 bbls. at 1,139-45 feet. Continental Oil Co.'s No. 3 Richardson had an initial production of 65 bbls. oil and 4 bbls. water at 1,137-69 feet. Gilliland-Rosser & Gwynn's No. 2 Roach & Junker location was abandoned. Golding's No. 1 Bloodworth was dry and abandoned at 1,232 feet. Johnson & Fraser's No. 1 Graham was dry and abandoned at 1,390 feet. Johnston's No. 1 Garvey was dry and abandoned at 842 feet. Peacock's No. 1 Garrett was dry and abandoned at 800 feet. Petroleum Products Co.'s No. 4 Phillips was drilled to a total depth of 1,186 feet, topped the pay at 1,175 feet and had an initial production of 30 bbls. oil and 8 bbls. water. Prairie Oil & Gas Co.'s No. 27 Richardson had an initial production of 15 bbls. at 1,294-1,300 feet. Underwood Drilling Co.'s No. 3 Andrews was dry and abandoned at 954 feet. Young's No. 1 fee was dry and abandoned at 1,400 feet.

Cooke County

Kewanee Oil & Gas Co.'s No. 17 Timmis had an initial production of 35 bbls. at 1,295-1,328 feet. Its No. 18 Timmis had an initial production of 26 bbls. at 1,158-1,225 feet. Its No. 19 Timmis had an initial production of 110 bbls. at 1,385-1,430 feet.

Jack County

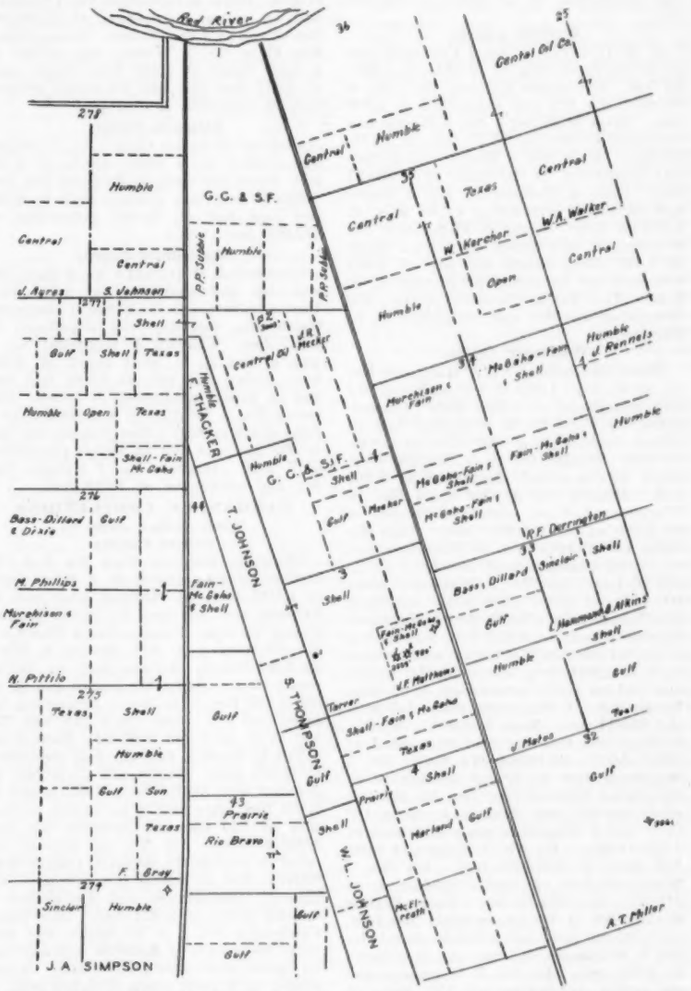
Owens and others' No. 1 Sewell was temporarily abandoned at 2,501 feet. Harper's No. 2 Leffel had an initial production of 247 bbls. at 3,073-82 feet and 3,085-95 feet and was drilled to a total depth of 3,095 feet. Security Drilling Co.'s No. 1 Shanafelt had an initial production of 360 bbls. at 3,055-66 feet.

Montague County

Bridwell Oil Co. and Continental Oils' No. 4 Cunningham was drilled to a total depth of 1,273 feet, topped the pay at 1,099-1,107 feet and 1,246½-73 feet and had an initial production of 49½ bbls.

Young County

Shappell Oil Co.'s No. 6 Garrett had an initial production of 10 bbls. at 589-98 feet. Steed & Gans' No. 1 Snider was dry and abandoned at 652 feet. The Texas Company's No. 2 Stewart had an initial production of 70 bbls. at 726-41 feet. Wise & Jackson's No. 1 Snider had an initial production of 16 bbls. at 612-17 feet. Their No. 2 Snider was dry and abandoned at 650 feet. Forbes and others' No. 1 Williams was shot with 35 quarts



Plat showing location of Shell Petroleum Corp.'s No. 1 Tarver, in the northeastern corner of Foard County, Texas. This wildcat discovery was completed at a total depth of 2,024 feet in sand, flowing and swabbing 220 bbls. the first 19 hours.

at 3,954-76 feet and had an initial production of 216 bbls. Panhandle Refining Co.'s No. 1 Morrison plugged the hole at 4,405 feet. Bridwell and others' No. 1 Prideaux Brothers was dry and abandoned at 736 feet. Kleiner and others' No. 28 Langston had an initial production of 65 bbls. at 514-69 feet. M. & V. O. Co.'s No. 2 Thomas was dry and abandoned at 1,035 feet. Ryan & Stastny's No. 1 Stewart was dry and abandoned at 580 feet.

Throckmorton County

Bearman's No. 1 Ledbetter had an oil show at 778-79 feet and was dry and abandoned at 801 feet. Profit's No. 1 Walker was dry and abandoned at 807 feet. Roeser, Pendleton & Holder's No. 2 Titus was dry and abandoned at 650 feet. Their No. 3 Titus made 40 bbls. at 595-606 feet. Their No. 4 Titus had an initial production of 25 bbls. at 593-606 feet.

Wichita County

G. M. C. Oil Co.'s No. 1 Crudup-B had an initial production of 10 bbls. at 1,807-13 feet. Panhandle Refining Co.'s No. 6 Burnett was dry and abandoned at 1,600 feet. River & Barley's No. 5 Michie had an initial production of 75 bbls. at 1,778-97 feet. Their No. 4 Michie had an initial production of 80 bbls. at 1,780-97 feet. Reno & Goldsmith's No. 2 Roller had an initial production of 50 bbls. at 1,787-99 feet. Stump & Heydrick's No. 4 Ferguson was drilled to a total depth of 1,797 feet, topped the pay at 1,781 feet and had an initial production of 70 bbls. The Texas Company's No. 359 Waggoner was dry and abandoned at 2,-252 feet.

Wilbarger County

Baker and others' No. 1 Waggoner had an oil show at 1,940-46 feet and was dry and abandoned at 1,946 feet. Consolidated Oil Co.'s No. 2 Waggoner had an initial production of 260 bbls. at 1,849-70 feet. Cosden Oil Co.'s No. 34 Waggoner was dry and abandoned at 2,761 feet. Empire Oil & Gas Co.'s No. 10 Waggoner had an initial production of 83 bbls. at 2,332-2,400 feet. Fain-McGaha Oil Corp.'s No. 4 Waggoner had an initial production of 200 bbls. at 2,-301-16 feet. Its No. 1 Waggoner made 100 bbls. at 2,384-2,410 feet. Grayback Development Co.'s No. 1 Smith-Waggoner topped the pay at 1,978 feet, was drilled to a total depth of 2,000 feet, was plugged back to 1,984 feet, shot with 10 quarts and had an initial production of 25 bbls. Knight's No. 2 Waggoner made 235 bbls. at 1,858-71 feet. Maer & Staniforth's No. 1 Waggoner was dry and abandoned at 2,010 feet. Richfield Oil Co.'s No. 1 Waggoner had an initial production of 40 bbls. at 1,968-82 feet. Its No. 2 Waggoner location was abandoned. Shaw Oil Co.'s No. 2 Waggoner made 230 bbls. at 1,851-71 feet. Its No. 3 Waggoner made 175 bbls. at 1,855-70 feet. Its No. 4 Waggoner had an initial production of 216 bbls. at 1,854-77 feet. Staley-Wynne & Co.'s No. 3 Waggoner made 250 bbls. at 2,285-92 feet and 2,386-94 feet. Its No. 1 Waggoner was dry and abandoned at 2,508 feet. Its No. 1 Waggoner had an initial production of 125 bbls. at 1,892-1,903 feet. Waggoner Refining Co.'s No. 1 Waggoner made 220 bbls. at 1,864-68 feet. Its No. 2 Waggoner made 180 bbls. at 1,865-88 feet.

RANGER COMPLETIONS

Week ending June 15

Brown County

American Maracaibo Oil Co.'s No. 2 Cross location was abandoned. Its No. 1 Duff was dry and abandoned at a total depth of 1,185 feet. Anderson's No. 1 Jones was dry and abandoned at 1,150 feet. Brider, trustee's No. 3 Cross was dry and abandoned at a total depth of 1,-172 feet. Humphreys Brothers' No. 9 Newton was dry and abandoned at 1,-188 feet. Liebhart's No. 1 Lewis was dry and abandoned at 1,715 feet. Owens, Inc.'s No. 1 Henry was dry and abandoned at 1,520 feet after encountering sand at 1,116-32 feet and having a rainbow show of oil and gas at 1,119 feet.

Callahan County

Cranfill & Reynolds' No. 1 Harris was dry and abandoned at 1,745 feet.

Coleman County

Meredith Benton & Cameron's No. 1 Lindletary was dry and abandoned at 1,-404 feet. Foster's No. 1 Overall was dry and abandoned at 2,350 feet.

Eastland County

States Oil Corp.'s No. 1 McDonald was dry and abandoned at 3,291 feet. Crabb, McNeil & Canyon Oil & Gas Co.'s No. 1 Turner had an oil show at 1,296 feet and was drilled to a total depth of 1,322 feet, with an initial production of 40 bbls. on pump. Owens, Inc.'s No. 1 Turner heirs was dry and abandoned at 1,-352 feet after a slight show of gas at 1,302-15 feet.

Palo Pinto County

Brazos River Gas Co.'s No. 3 Wharton was drilled to a total depth of 4,295 feet, shot with 40 quarts from 4,220-70 feet with no results and was shot again with 30 quarts at 4,151-64 feet and had an initial production of 1,000,000 feet of gas. Bolin & Lindsey's No. 1 Costello had an initial production of 1,500,000 feet of gas at 1,281-96 feet. Brazos River Gas Co.'s No. 3 Wester was drilled to a total depth of 1,498 feet, found sand at 1,472 feet and had an initial production of 2,500,000 feet of gas.

Stephens County

Chestnut & Smith Corp.'s No. 1 Hodges was drilled to a total depth of 4,150 feet, found gas sand at 3,640-80 feet and 3,820-40 feet, was plugged back to 3,840 feet and had an initial production of 432,000 feet of gas.

Shackelford County

Campbell & McDonald's No. 1 Raynolds was dry and abandoned at 1,155 feet. Less Combest Oil Co.'s No. 1 Reynolds Cattle Co. was dry and abandoned at 1,237 feet. Cranfill & Reynolds' No. 1 was drilled to a total depth of 1,049 feet, topped the pay at 1,041 feet and had an initial production of 5 bbls. Gilman's No. 2 McMurray was drilled to a total depth of 636½ feet, topped the pay at 633 feet and had an initial production of 7 bbls. Hagan's No. 1 Flippin was dry and abandoned at 1,010 feet.

PANHANDLE COMPLETIONS

Week ending June 15

Carson County

Champlin Refining Co.'s No. 1 J. W. McConnell was drilled to a total depth of 3,090 feet, encountered lime pay at 3,080-90 feet and had an initial production of 70 bbls. Empire Gas & Fuel Co.'s No. 15 Burnett, C NW Section 4, Block 5, I.&G.N.R.R. Survey, had an initial production of 5,000,000 feet of gas at 2,-590-2,865 feet. Its No. 1 Armstrong, located 330 feet from south line and 330 feet from east line NW SE, Section 31, T.T.R.R. Survey, was dry and abandoned at 3,417 feet. Skelly Oil Co.'s No. 13 Schafer was drilled to a total depth of 3,100 feet after having an initial production of 540 bbls. at 3,084-89 feet and 3,093-98 feet. Its No. 14 Schafer, located in Section 68, Block 4, I.&G.N.R.R. Survey, had an initial production of 472 bbls. at 3,050-54 feet and was drilled to a total depth of 3,622 feet. The Texas Company's No. 1 J. K. Quinn was shot with 100 quarts at 3,030-90 feet and had an initial production of 270 bbls. It was drilled to a total depth of 3,100 feet.

Gray County

Cockrell & McIlroy and others' No. 1 J. C. McConnell, located in Section 174, Block 3, I.&G N.R.R. Survey, was drilled to a total depth of 3,320 feet, plugged back to 3,245 feet, was shot with 30 quarts at 3,220-50 feet and had an initial production of 20 bbls. Danciger Oil & Refining Co.'s No. 1 H. Beck, located in Section 28, Block B-2, H.&G.N.R.R. Survey, was drilled to a total depth of 2,874 feet, topped the pay at 2,840-47 feet and 2,869-70 feet and had an initial production of 2,618 bbls. the first 24 hours. Gardner & Collins' No. 1 Lincoln-Saunders, located in Section 3, Block 1, A.C.H.&B. Survey, was drilled to a total depth of 2,660 feet, was shot with 140 quarts at 2,538-2,660 feet and had an initial production of 2,059 bbls. oil and 5,000,000 feet of gas the first 24 hours. The Texas Company's No. 5 Saunders was drilled to a total depth of 2,875 feet, topped the pay at 2,747-50 and 2,860-70 feet and had an initial production of 128 bbls. in 24 hours.

Hutchinson County

Holmes and others' No. 1 Moore, located in Section 125, Block 4, I.&G.N. R.R. Survey, was drilled to a total depth of 3,040 feet, topped the pay at 3,000-25 feet and had an initial production of 200 bbls.

WEST TEXAS FIELDS

(Continued from Page 75)

370,106 bbls. daily, the Yates Pool producing about 3,400 bbls. of this raise and Winkler County raising approximately 1,300 bbls.

Wildcatting in this area will no doubt be more active from now on due to the fact that crude in the district is being demanded by all active in the district.

ESTIMATED DAILY AVERAGE PRODUCTION WEST TEXAS
Week ending June 15

County—	Wells	Prod.
Crane County	306	34,090
Crockett County	43	2,132
Ector County	3	3
Fisher County	7	885
Glasscock County	25	576
Howard County	309	44,230
Jones County	83	3,427
Loving County	12	586
Mitchell County	141	2,623
Pecos County	313	105,000
Reagan County	241	18,352
Runnels County	3	30
Scurry County	4	28
Upton County	238	12,967
Ward County	5	1,289
Winkler County	598	143,888
Total this week	2,331	370,106
Total last week	2,331	366,218
Difference	0	3,888

PIPE LINE RUNS
May 29 to June 5
Runs Through Trunk Lines

	Last period
Atlantic P. L. Co., Port Arthur, Tex.	38,500
Gulf P. L. Co., to coast via Ranger, Tex.	24,729
Humble P. L. Co., via Comyn, Tex.	48,867
Humble P. L. Co., via Ingleside, Tex.	47,678
Illinois P. L. Co., via Del Rio, Tex.	44,000
Magnolia P. L. Co., to DeLeon, Tex.	32,000
Pasotex P. L. Co., El Paso, Tex.	10,983
Shell P. L. Co., Healdton, Okla.	40,748
Shell P. L. Co., Houston, Tex.	5,372
Total	292,877
Tank Car Shipments	
Thomas & Brann, Grant City	0
Orient, McCamey, Tex.	140
The Texas Co., Crossett, Tex.	425
T. P. C. & Oil Co., McCamey, Tex.	1,187
American Pet. Co., Pyote, Tex.	6,536
Skelly Oil Co., Pecos, Tex.	0
Southern Crude O. P. Co., Wickett, Tex.	14,008
Total	22,296
Runs to West Texas Refineries	
Amarillo Prod. Co., Pyote, Tex.	1,551
Bluebonnet Ref. Co., Wickett, Tex.	4,528
Burford Ref. Co., Pecos, Tex.	5,531
Col-Tex Ref. Co., Colorado, Tex.	7,000
Cosden Ref. Co., Big Spring, Tex.	14,657
Great Western Ref. Co., Big Spring, Tex.	4,066
Humble O. & R. Co., McCamey, Tex.	10,590
Midland Ref. Co., Midland, Tex.	2,356
Tonkawa Ref. Co., Pyote, Tex.	2,474
Valley Ref. Co., Pyote, Tex.	5,360
Big Spring Ref. Co., Big Spring, Tex.	2,516
Total	60,629

Summary

	Previous week	Last period
Pipe line runs through trunk lines	268,956	292,877
Tank car shipments	25,217	22,296
Runs to West Texas refineries	58,544	60,629
Total daily distribution	352,717	375,802
Total daily production	361,751	366,222
Daily average from storage	9,034	9,580

COMPLETIONS

Coke County

Cates & Dennis' No. 1 J. R. Mimms, 2,340 feet north and west SE cor., Section 8, Block W, T.P.R.R. Survey, was dry and abandoned at 2,005 feet.

Howard County

Moody Oil Corp.'s No. 11 Roberts-E, 1,650 feet south and west of NE, Section 136, Block 29, W.&N.W.R.R. Survey, topped the pay at 1,390 feet, was drilled to a total depth of 1,436 feet, found second pay at 1,418 feet and had an initial production of 25 bbls. on pump.

Reagan County

Skelly Oil Co.'s No. 4 University, located 2,310 feet north and 990 feet west of SE cor., Section 33, Block 8, was dry and abandoned at 3,094 feet. Big Lake Oil Co.'s No. 166 University had an initial production of 50 bbls. on pump at 2,936-41 feet.

Sterling County

George L. Miller's No. 1 W. L. Foster was dry and abandoned at 3,028 feet.

Pecos County

M. H. Black's No. 1 Pecos Valley Oil Co. topped the pay at 1,618 feet, was drilled to a total depth of 1,648 feet, shot with 30 quarts from 1,618-38 feet and had an initial production of 13 bbls. daily on pump. Transcontinental Oil Co.'s No. 2 University was dry and abandoned at 2,440 feet.

Upton County

Humble Oil & Refining Co.'s No. 11 Ricker, located 1,320 feet from NE cor. and 5,390 feet from northwest line, Section 5, Denton Survey A-127, topped the pay at 2,347 feet, was drilled to a total depth of 2,434 feet, plugged back to 2,-420 feet, shot with 40 quarts at 2,390-2,410 feet and had an initial production of 49 bbls.

Winkler County

Southern Crude Oil Purchasing Co.'s No. 7 Hendricks-T-88-K, located 1,320 feet from north and 1,650 feet from east of Section 41, Block 26, topped the lime at 2,635 feet, topped the pay at 2,870 feet, was drilled to a total depth of 2,-873 feet and had an initial production of 75 bbls. oil hourly, 3 per cent water. Its No. 3 Hendricks T-88-O, located 440 feet north and 331 feet east of Section 28, Block 26, P. S. Land Survey, topped the lime at 2,376 feet, topped the pay at 2,690 feet, was drilled to a total depth of 2,853 feet and had an initial production of 100 bbls. of fluid hourly, 80 per cent water. Its No. 4 Hendricks T-88-O, located 1,320 feet north and east of Section 28, Block 26, P. S. Land Survey, topped the lime at 2,444 feet, was drilled to a total depth of 2,753 feet, topped the pay at 2,660 feet and had an initial production of 8,000 bbls. daily, 34 per cent water.

Daily Average Production by Leases

WINKLER COUNTY
Week Ending June 11
Hendricks Pool

Company, farm, sec., block—	Wells	Bbls.
Amerada Pet. Corp.:		
Cowden, 3, B-12	3	537
Atlantic O. P. Co.:		
Hendricks-A, 34, B-5	8	1,248
Hendricks-B, 44, 26	5	632
Hendricks-D, 29, B-5	8	2,177
Hendricks-E, 41, B-5	6	2,647
Hendricks-G, 46, 26	7	662
Hendricks-H, 30, B-5	1	6
Atlantic and Collett:		
Hendricks-F, 40, 26	13	2,838
Bankers Prod. Co.:		
Hendricks, 30 B-5	1	45
V. T. Bolin:		
Brown Altman, 4, B-5	1	4
California Co.:		
Hendricks, 29, B-5	7	992
Cranfill & Reynolds:		
Hendricks-A, 28, B-5	2	163
Hendricks-B, 35, B-5	1	84
Hendricks-C, 33, 26	2	157
Hendricks-E, 33, 26	2	398
Cranfill and Texon:		
Hutchings, 47, 26	1	77
Culberson Bros.:		
Hendricks, 40, B-5	1	75
Eastland Oil Co.:		
Hendricks, 35, B-5	2	400
Hendricks-B, 41, 26	1	149
Gulf Prod. Co.:		
Hendricks-A, 34, B-5	13	4,199
Hendricks-B, 45, 26	11	7,366
Hendricks-C, 40, B-5	6	1,380
Hendricks, 44, 26	2	577
Cowden, 3, B-12	3	1,743
Humble O. & R. Co.:		
Hendricks-A, 34, B-5	17	5,139
Hendricks-B, 29, B-5	6	1,093
Hendricks-C, 32, 26	8	727
Hendricks-B, 47, 26	7	713
Hendricks-C, 10, B-12	10	5,368
Independent O. & G. Co.:		
Hendricks-A, 34, B-5	8	1,128
Howe-B, 44, 26	3	346
McCabe, 36, B-5	2	229
Hendricks, 42, B-5	1	11
Vardemen-B, 41, B-5	7	762
Magnolia Pet. Co.:		
Hendricks, 29, B-5	8	811
Marland Oil Co.:		
Hendricks, 33, 26	4	890
Hendricks, 29, 26	2	153
Hendricks, 34, 26	2	231
May Prod. Co.:		
Hendricks, 34, 26	1	8
American Maracaibo:		
Hendricks-A, 28, B-5	1	45
Hendricks-B, 28, B-5	1	155
Mining & Eng.:		
Hendricks, B-5	1	15
Murchison & Cranfill:		
Hendricks-A, 35, B-5	3	719
Hendricks-B, 35, B-5	3	606
Hendricks-C, 35, B-5	1	1
Hendricks-H, 35, B-5	1	1,614
Hendricks-I, 34, 26	2	523
Prairie O. & G. Co.:		
Hendricks, 40, 26	6	1,526
Cowden, 3, B-12	6	4,293
Pure Oil Co. (Lion):		
Hendricks, 41, B-5	11	1,799
Hendricks-B, 34, B-5	13	3,986
Hendricks-C, 45, 26	14	8,695
Hendricks-D, 44, 26	1	179

(Continued on next page)

Republic Prod. Co.:		
Hendricks-A, 45, 26	13	2,679
Hendricks-B, 41, B-5	5	188
Shell Pet. Corp.:		
Hendricks-A, 45, 26	6	1,178
Hendricks-B, 29, B-5	6	1,050
Hendricks-C, 29, B-5	8	1,229
Hendricks-B, 41, B-5	6	430
Hendricks-E, 40, B-5	3	694
Hendricks-F, 46, 26	8	1,725
Hendricks-G, 39, 26	1	91
Shell-The Texas Co.:		
Cowden-A, 3, B-12	6	1,387
Hendricks, 45, 26	6	1,341
Hendricks-A, 29, B-5	11	2,707
Hendricks-B, 40, 26	6	743
Hendricks-C, 40, 26	6	1,729
Hendricks-D, 40, 26	6	538
Hendricks-E, 39, 26	4	339
Skelly Oil Co.:		
Hendricks, 40, 26	12	6,491
Hendricks-B, 39, 26	2	21
Hendricks-C, 39, 26	1	361
Southern Crude Oil Purch Co.:		
T-67 Hendricks-A, 42, B-5	3	155
T-67 Hendricks-3-A, 4, B-12	5	550
T-67 Hendricks-B, 44, 26	5	500
T-67 Hendricks-3-B, 33, 26	4	528
T-67 Hendricks-C, 33, B-5	5	570
T-67 Hendricks-2-D, 28, 26	4	824
T-67 Hendricks-E, 42, B-5	4	136
T-67 Hendricks-F, 33, B-5	5	848
T-68 Hendricks-3-A, 35, B-5	3	175
T-68 Hendricks-B, 46, 26	2	420
T-88 Hendricks-A, 44, 26	6	834
T-88 Hendricks-B, 4, B-12	4	931
T-88 Hendricks-C, 28, B-5	8	1,087
T-88 Hendricks-D, 4, B-12	6	3,197
T-88 Hendricks-H, 28, B-5	6	1,145
T-88 Hendricks-I, 30, B-5	7	1,231
T-88 Hendricks-J, 30, B-5	5	1,093
T-88 Hendricks-K, 41, 26	7	1,691
T-88 Hendricks-L, 4, B-12	4	909
T-88 Hendricks-M, 33, 26	31	13,536
T-88 Hendricks-N, 28, 26	5	1,462
T-88 Hendricks-O, 28, 26	3	954
T-88 Hendricks-P, 28, 26	1	186
T-88 Hendricks-Q, 27, 26	2	878
T-88 Hendricks-R, 28, 26	2	876
T-88 Hendricks-S, 34, 26	4	1,261
T-88 Hendricks-T, 34, 26	7	619
T-88 Hendricks-U, 41, 26	9	1,243
T-88 Hendricks-V, 29, 26	1	62
T-88 Hendricks-W, 5, B-12	1	265
T-88 Hendricks-CX, 21, 26	1	200
T-89 Hendricks-A, 35, B-5	3	285
T-89 Hendricks-B, 35, B-5	2	488
T-89 Hendricks-C, 35, B-5	3	540
T-89 Hendricks-D, 35, B-5	1	248
T-89 Hendricks-E, 40, B-5	3	113
T-89 Hendricks-F, 40, B-5	2	257
T-89 Hendricks-H, 46, 26	2	279
T-89 Hendricks-I, 10, B-12	2	177
T-89 Hendricks-J, 9, B-12	8	3,093
T-90 Hutchings, 47, 26	1	271
Texon O. & L. Co.:		
Hendricks-A, 41, B-5	6	524
Hendricks-B, 45, 26	6	1,402
Winkler O. P. Co.:		
Hendricks, 33, 26	1	7
Total Hendricks Pool	573	141,020
Leck Area		
Atlantic-Kesslar & Logan:		
Leck, 3, 74	2	606
Amerada Pet. Corp.:		
Leck, 3, 74	2	543
Empire G. & F. Co.:		
Daugherty, 3, 74	3	213
Magnolia Pet. Corp.:		
Scarborough, 1, C-22	1	148
Gulf Prod. Co.:		
Scarborough, 1, C-22	1	73
Shell-Llano Oil Co.:		
Scarborough, 1, C-22	3	165
Shell-Danciger:		
Leck, 3, 74	2	177
Shell Pet. Corp.:		
Leck, 3, 74	1	11
Skelly Oil Co.:		
Leck, 3, 74	1	280
Prairie O. & G. Co.:		
Leck, 16, 74	1	320
Daugherty, 3, 74	1	247
Scarborough, 1, C-22	1	21
Warner-Quinlan:		
Leck, 3, 74	1	365
Total Leck Pool	20	3,179
O'Brien Pool		
Marland Oil Co.:		
Morton, 10, B-12	2	219
Wentz Oil Corp.:		
Morton, 10, B-12	1	317
Simms Oil Co.:		
Sealy, 50, F	1	40
Richardson et al:		
Stockton, 50, F	1	258
Total O'Brien Pool	5	834
Grand total Winkler Pool	598	145,033

PECOS COUNTY
Yates Pool
Week Ending June 11

Company, lease—	Wells	Bbls.
California Co.:		
Yates—Lease 1	18	7,975
Smith—Lease 1, Sec. 27	3	464
Smith—Lease 1, Sec. 23	7	1,579
Smith—Lease 1, Sec. 21	3	839
Smith—Lease 2	2	68
Smith—Lease 3	12	2,975
Smith	1	12
Tippett—Lease 1	1	34
Cosby Drlg. Co.:		
Smith	1	258
Gulf Prod. Co.:		
All leases	36	12,979
Humble O. & R. Co.:		
Smith-A	10	1,228
Smith-B	5	719
Kirby Pet. Co.:		
Tippett	2	53
Kirby Pet. and Edson:		
Tippett	1	187
Marland Oil Co.:		
Yates-A	6	636
Yates-A Salvage		4,018
Mazda & Savoy:		
Smith	3	635
McCarty Oil Co.:		
Gray	1	Off
McMan O. & G. Co.:		
Smith-A	1	1,271
Smith-B	4	1,251
Smith-C	5	934
Tippett	2	302
Richardson	1	76
McMan and Marland:		
Yates	17	4,853
Mid-Kansas and Transcont.:		
Yates-A	27	13,741
Yates-B	27	6,727
Yates-C	12	6,943
Yates-D	7	7,219
Yates-E	1	93
Yates-F	4	773
Yates-G	4	1,188
Yates-H	9	5,924
Smith	5	1,457
Smith	18	3,609
Grayburg Oil Co.:		
Pecos River Bed	6	475
Salvage		847
Pecos Valley Oil Co.:		
Fee, Sec. 22, Blk. 26	2	60
Phillips Pet. Co.:		
Monroe	1	85
Ramsey	1	233
Smith	2	660
Red Bank Oil Co.:		
Smith	5	471
Shell Pet. Co.:		
Tippett	11	2,349
Smith	9	969
Smith-B	1	667
Smith-D	3	509
Smith-E	1	22
Simms Oil Co.:		
Smith-E	7	5,648
Skelly Oil Co.:		
Tippett	1	82
Total Yates Pool	306	104,077

E. L. RYERSON, JR., IS MADE HEAD OF COMPANY

Edward L. Ryerson, Jr., has been elected president of Joseph T. Ryerson & Son, Inc., Chicago, succeeding Joseph T. Ryerson, who will remain a member of the board and continue to hold the office of treasurer.

Edward L. Ryerson, Jr., has had 20 years' experience in the operating and

Edward L. Ryerson, Jr.

marketing divisions of the business. He was graduated from Sheffield Scientific School (Yale) in 1908 and later attended the Massachusetts Institute of Technology. Going to Ryerson company in 1909 he began in the plant operating department and was works manager several years. In the World War he was a captain in the Air Service Division of the Signal Corps. He was elected vice president of the Ryerson company in 1922 and vice president and general manager in 1928.

Mr. Ryerson is a trustee of the University of Chicago and a director of the Northern Trust Co. and the Quaker Oats Co. He is president of the Chicago Council of Social Agencies and active in other civic enterprises. The Ryerson company, now in its eighty-seventh year, manufactures steel products for industrial consumption. Its plants are in Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Buffalo, Boston, Cleveland and Jersey City.

GENETIC CONNECTION BETWEEN SALT DEPOSITS AND PETROLEUM

The idea that there is a genetic connection between salt deposits and the formation of petroleum, often in commercial quantities, is by no means a new one, says the London Petroleum Times, but has never been definitely proved. In recent years the occurrence of a salt dome is regarded as one of the most promising indications of the probable existence of petroleum in commercial quantity in its near neighborhood, but this is often explained by the fact that the arching of the strata due to the formation of the dome has provided conditions, all others being favorable, for the accumulation of oil, and that the presence of masses of salt have otherwise no relation to the accumulation of petroleum in or around them.

In Inter. Zeit. f. Bohrtechnik, Erdolberghau, u. Geologie (May 1) Dipl.-Eng. A. Weinfeld, of Bucharest, contributes an article on "New Theories Regarding the Formation of Petroleum, Etc.," the introductory part of which is a discussion of the genetic connection between salt deposits and the petroleum in porous sands, in which he advances a point of view which is of some interest, apart from any question as to whether it is tenable or not. A few points from this introductory part are given which may serve to convey the tenor of his remarks and afford data for criticism.

In the first place, the author claims to have made many years' study of the question and to have arrived at conclusions contrary to those most general in regard to water phoenomena in oil fields. He is entirely opposed to the idea of migration of oil from its mother rocks and therefore assumes that the greater part of the oil found in porous beds is primary in character, that is, formed in the rocks in which it is actually found by the drill, and claims also to have discovered evidence in his studies which has forced him to this conclusion. He states that it has been established that all oil-bearing geological formations are productive of commercial quantities of oil only in the regions where ordinary salt occurs in quantity and, therefore, it is logical to assume the genetic connection between the two substances.

The general explanation is that petroleum originated in the time the salt deposits were formed, but that in consequence of movements of the earth's surface, such as mountain forming and folding, the oil migrated from its mother source into porous formations; hence, there is at least a tectonic connection between salt and petroleum which accounts for the migration. But the author declines to accept the migration theory, and claims to have discovered a true genetic connection between salt and petroleum which, in his opinion, rules out any tectonic connection between the two. He says that the importance given to fault lines, anticlines and structures generally in the formation of oil pools is much greater than the facts justify. He says that it is generally agreed that in the presence of much sodium chloride in solution in water calcium sulphate cannot exist, because it would be precipitated and quotes Haug: Traite de Geologie, page 98, ed. 1911, in support of this.

The author considers that this fact, which excluded calcium sulphate from solution, made it possible for organisms of the animal world to exist in great abundance and, because of the absence of calcium sulphate in solution, these did not form crusts and shells of calcium carbonate but had soft bodies without parts which would have a permanent existence. Where calcium sulphate can remain in solution the organisms existing would be those which had shells or skeletons of calcium carbonate, but where the calcium sulphate could not remain dissolved, thus in a briny solution, the organisms would be of the soft, shell-less type, which would decompose without leaving behind any fossil forms. The remains of these soft organisms, permeating and covering porous sands, were the mother substance of petroleum, which would be formed by the burying up of these sands with this organic material. The author considers that vegetable remains were the mother substance of most coals, a mixture of vegetable and animal remains probably formed the highly bituminous coals, while the above mentioned soft bodied animal organisms were the mother source of the petroleum.

The water containing such organisms must necessarily be rather highly concentrated solutions of sodium chloride, otherwise the calcium sulphate in solution would give rise to other kinds of organisms with hard, shelly exteriors. This is said to explain the genetic connection between petroleum and earth salt without the necessity of resorting to tectonic disturbances, fault lines or anticlines for the explanation.

Even where such structures are in connection with salt deposits, they have, on that account, no genetic connection with petroleum formation. Only in those structures actually connected with known oil-bearing formations is commercial petroleum obtained. Nevertheless, the anticlines are said by the author to have a certain influence in petroleum recovery, for they have brought the former salt lake bottoms, and with them the petroleum-carrying beds, either to the surface or within such distances below the surface that they can be economically exploited.

The author claims that, by this theory of the genetic connection between salt and petroleum, he arrives at a simple conception of the forming of primary petroleum without special regard to pressure, temperature or migration of the oil after formation.

The author states that, having once abandoned the migration theory and cut adrift from prevailing theories, he obtained quite a new conception of the origin of petroleum which has been confirmed by practical experience. He publishes his views without elaborate argument or scientific formulae in the hope that they will cause interest to be taken in this aspect of oil formation. He believes firmly that, once the erroneous beliefs regarding water phenomena in oil fields are given up, no sand containing oil will be allowed to remain unexploited on account of water trouble. Improvements in drilling tools and drilling methods are constantly making greater performances possible.

The theory of the primary oil-bearing bed naturally increases the range of formations in which oil may be expected to occur, as all formations which were subject to conditions more or less similar to those referred to above, come in question as possible oil formations. The author emphasizes that deep drilling may be necessary—2,000 meters or more (6,560 feet)—to find the limiting zones of the "salt water" rocks and the oil-bearing areas, but believes it probable that the oil-bearing formations cover a much greater area than has hitherto been supposed.

PREPARE FOR 10,000-FOOT DEEP DRILLING

SAN FRANCISCO, Calif., June 15—Discussing possibilities of 10,000-foot depth in future deep-zone oil drilling, Associated Oil Co. states mills are working on a better grade of steel for casings, which will give 30 per cent additional collapsing strength and 40 per cent additional tensile strength. The company further says:

"With the present pumping and gas lift methods and also fluid levels that may be expected after the wells stop flowing, it is reasonable to expect that large quantities of oil will be produced from deep holes even after the wells stop flowing. It therefore seems very reasonable to believe that oil will be found at depths of 10,000 feet."

CONFERENCE NARROWS COURSE OF ACTION

(Continued from Page 38)

Mark L. Requa, chairman of the conference, also appointed the four governors present—Frank C. Emerson of Wyoming; Clyde M. Reed of Kansas; J. E. Erickson of Montana and William H. Adams of Colorado—to consider Governor Reed's recommendations and to report at the Wednesday morning meeting.

The four governors favored the formation of a commission representing the Government and the different oil producing states which would consider the matter of oil conservation and then recommend to the National and State Governments whatever general policy they might deem proper. The representatives of Texas, Oklahoma and California believed further study of the subject to be advisable and a joint conference between them and the four governors failed to change their viewpoint, whereupon they presented their resolution carried in the box of this article.

The four governors and all other state representatives voted for this resolution although they favored taking some definite action at the conference looking towards the formation of a commission. Governor Reed states the position of the four governors as follows: "The President of the United States called this conference to consider our oil and gas resources—a vital question to the country as a whole. We believe more progress should have been made at this conference from the standpoint of national interest but we realize the futility of proceeding further without the co-operation of the three main crude oil producing states. The people of the United States have an interest in these resources as great as the people of those three states." Governor Reed said he wanted to dissent from any idea that in regard to any natural resource the people of any state have the right to control that resource for their own selfish interests.

RESOLUTION WHICH CAUSED RECESS

When delegates representing the States of California, Oklahoma and Texas at the oil conservation conference, meeting in Colorado Springs at the call of President Hoover, offered the following resolution as a result of their joint deliberations, representatives of the other states immediately decided it was futile to further continue discussions. Oklahoma, California and Texas represented about 85 per cent of the nation's crude oil production and it was realized these States hold the key to any solution of the overproduction problem and that whatever they decided must of necessity guide other states. The resolution offered by the three states and adopted unanimously by the official delegates of all states represented at the conference, follows:

"The official delegates from the States of Texas, California and Oklahoma after a consultation among themselves, instead of making a recommendation for immediate action, believing in view of the facts developed during the sessions of the conference concerning the main objectives sought to be accomplished by it, that a further study of the problems involved would likely attain better results, offer the following:

"To continue the work of the Conference of Governors called by the President and now in session, it is the judgment of the conference that a recess be taken subject to re-assembling upon call of the President of the United States. The governors of the several oil-producing states are requested to be present upon such reconvening of the conference and that they each bring with them or send to the conference three official delegates."

Position of Governors

Governor Reed then presented as a matter of record, on which a vote was not requested, the following as the report of the four governors:

"To continue the work begun by the conference of governors called by President Hoover and now in session, we deem it advisable that a representative or representatives not exceeding three in number from each of the oil producing states, to be designated by the governor of each state, and a representative or representatives of the Government of the United States to be appointed by the President, constitute a commission to consider the entire subject of the conservation of oil and gas resources of the nation and make a report to the National and State Governments with recommendations as to the general policy found to be proper.

"We request the representative to be appointed by the President to enter into correspondence with the governors of the various oil states with a view to making this resolution effective.

"1. That in the development of a sound general policy, co-operation and co-ordination of state and national authority is not only desirable but essential.

"2. That adequate regulation of production methods in the several producing states and sections is highly desirable in the interest of avoiding waste and of reducing production costs and that so far as the organic law of the several states will permit, uniform legislation should be enacted and uniform administrative regulation adopted.

"3. That within the limits of practicability and sound policy production should be limited to the economic necessities of any particular period or region.

"4. That exploration for the purpose of locating additional oil supplies is not to be limited since no waste of the product is involved thereby. We declare information of the location and probable extent of such supplies to be of value in dealing with the whole question.

"5. That economical methods of controlling production from existing large pools and from those hereafter discovered should be devised and made effective.

"6. That the commission should consider the extent to which the policies herein declared to be advisable can be made effective through compacts between the states and the extent to which national assistance through legislation and administration is necessary and advisable.

"7. That in working out a national policy, due consideration should be given to all interests including consideration of the situation in the so-called public land states as well as in those states in which oil development is being carried on from privately owned lands; and that present conditions justify consideration of the effect of Order 338 of the Department of Interior to determine the advisability of substantial modification.

"8. A correct policy of conservation is that which will insure the use of this invaluable natural resource to the whole people. That will give to the owner of the land where it is found the maximum recovery and will allow production refining and marketing to be carried on at a minimum cost, keeping in mind that not only the immediate cost of production and present price to the consumer are involved but also the ultimate value of this resource to the nation as a whole."

Just prior to recessing, W. Scott Heywood, representing Louisiana, presented the following resolution to the conference. It was seconded by Governor Reed of Kansas and declared adopted by the conference although only a very few of the delegates voted on the resolution. It reads:

"We recognize that the oil situation has international as well as national aspects and that the importation of oil is a factor in the situation in this country which must be considered in any policy dealing with the entire subject."

Upon motion of W. R. Wallace of Utah, the conference voted its thanks to and confidence in Mr. Requa in connection with his work as chairman of the conference.

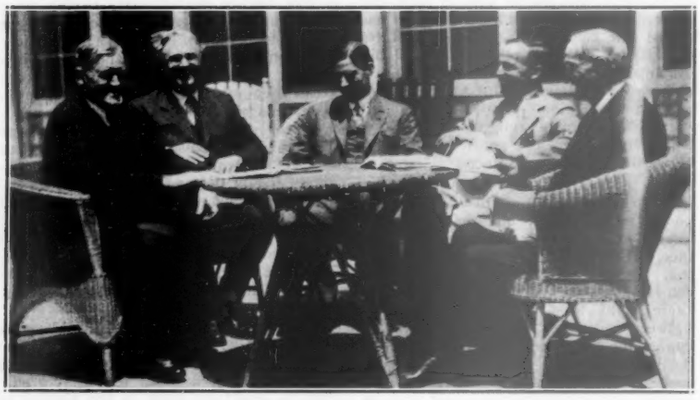
When asked for a statement as to his views of the Colorado Springs meeting, E. B. Reeser, president of the American Petroleum Institute, said:

"A superficial view of the meeting held June 10 at the Broadmoor Hotel, Colorado Springs, Colo., might impress the average reader of the proceedings, as reported in the Press, as being ineffective, but I think differently. The various views expressed at that meeting resulted from controversies which were started by those interested, long before the meeting, and the meeting as a whole was productive of great benefit to the oil industry. It spread a more general knowledge of the difficulties we have encountered and the legal questions which interfere with our advance in any direction. The meeting gave expression to every possible view that might be held by the different units that go to make up the oil industry. The contending principles in conflict at the meeting might be expressed as collectivism against individualism. The difficulties in the way of advancement along any line suggested, demonstrated that we must have new congressional legislation that will protect the collective movement, and at the same time protect the individual from injustice. The Sherman antitrust law has been used for an ulterior purpose by those who might not wish to take part in a collective movement. It would be well if this law could be amended so as to eliminate that excuse, and at the same time have its operation in particular cases controlled by the Interstate Commerce Commission or Federal Trade Commission, under proper rules and regulations.

"It appears to be the consensus of opinion among the lawyers who investigated the subject, that no more could be accomplished in the way of effective legislation by compact between the states than could be accomplished by a single state, except by way of uniform legislation.

"Speaking for myself, I think that the meeting assisted those who are sincerely working for conservation, and that future efforts and labor will not be ineffective or futile."

GOVERNORS AT OIL CONSERVATION CONFERENCE



Left to right: Gov. Clyde M. Reed, Kansas; Gov. J. E. Erickson, Montana; Secretary of the Interior Ray Lyman Wilbur; Gov. Frank C. Emerson, Wyoming; and Gov. William H. Adams, Colorado.

GAS TANKS TO ANSWER "FLIERS' WHERE NOW?"

The Pacific Gas & Electric Co. is doing its share in the advancement of aviation in California. In addition to providing power for beacon systems that guide fliers by night, the company helps to direct the airmen by day. On top of huge gas holders throughout its system the company has painted large arrows to guide planes to airports or to mark airways. Stockton is the latest to join this move and now an arrow atop the gas tank there points the way to Stockton airport, situated some 2 or 3 miles to the south and east of the city.

CANNOT EFFECT INTERSTATE COMPACT PLAN UNTIL 1931 AT EARLIEST—AMES

NEW YORK, June 18.—C. B. Ames, vice president of The Texas Company and head of the legal department, declares any oil conservation policy of nation-wide nature cannot be effected in the United States until 1931 at the earliest, due to the impossibility of obtaining enabling legislation. He believes, however, an important and necessary step was accomplished as a result of the Colorado Springs meeting, saying: "It was not thought possible in any event that meeting would draft a definite program of conservation. The action which the conference took was as far as it is possible to go at this time."

On the legislative aspects of an interstate agreement, Judge Ames says: "It is unlikely that any interstate compact on oil can be made effective before late in 1931 or early in 1932. Legislatures which meet biennially in certain oil-producing states have adjourned or shortly do so. The plan to be effective must receive legislative approval of the states interested at the same time after first being ratified by federal authorities involved. This would indicate the summer of 1931 as the earliest possible date for the birth of enabling laws."

Judge Ames denies press imputations that there was a political flavor in the Colorado Springs proceedings, declaring: "The Colorado Springs meeting afforded an opportunity for discussing all aspects of conservation, waste and other production problems. There was a very pronounced harmony of thought among leaders in the industry though there was some difference of opinion on the part of representatives of states, due doubtlessly to varying conditions and needs of such states. There was a further wholehearted indication on the part of representatives of Oklahoma, Texas and California to co-operate in any interstate program which may be drafted."

TESTING A PROMISING AREA IN SCURRY-BORDEN COUNTIES, TEXAS

By L. E. Bredberg

One of the most interesting areas in West Texas, at present, is Scurry and Borden Counties, where several tests are drilling and where locations for others have been made.

W. A. Moncrief and J. C. Farrel, Fort Worth, are drilling a test in the C NE, Section 15, Block 31, Township 4n, T. &P. Survey, on the Munger farm. The Humble Oil & Refining Co. purchased 80 per cent interest in the block of 6,500 acres which was worked up by Moncrief and Farrel. The location of the test drilling is said to be on a large structure which is running higher than practically all others in the county, and possibilities for making a commercial producer look very favorable to those interested.

The above mentioned block lies in Borden County, southwest of another interesting area in Scurry County which has three locations staked out ready for drilling. One of these locations is Teas and Wheeler's No. 1 Long, located 1,320 feet from the north and east lines of Section 27, Block 30, T.&P. Survey, 7 miles north of Moncrief and Farrel's test. Seven miles due east of the Teas and Wheeler test is the location of the Louisiana Oil & Refining Co., NW Section 322, Block 97, H.&T.C. Survey. Thirteen miles east and a little north of this test, The Texas Company and Canadian Oil Co.'s No. 1 Moore is located 1,320 feet from the south and west lines of Section 379, Block 97, H.&T.C. Survey. Between these two tests, and to the north of them, Cottingham and Briscoe have made a location for No. 1 Truss, SE Section 427, Block 97, H.&T.C. Survey, in the center of what is known as the "Fluvanna Block" which consists for the most part of Sections 461, 462, 426, 427, 428, 405, 406, 407, 370, 371 and 372. The block gets its name from the town of Fluvanna, 1 mile to the north.

A General Plateau

The topography of this area is a general plateau, sloping roughly to the southeast, this general plateau being interrupted by a gentle east trending topographically high area. The topography conforms generally with the underlying Cretaceous and Triassic formations which are locally present. Four miles north of Fluvanna, the plateau terminates abruptly at a northwest trending escarpment which is approximately 500 feet in relief. Along the northern face of this escarpment excellent exposures of Cretaceous and Triassic formations may be noted.

The drainage of the south part of this area runs to the south into the tributaries of the Colorado River which flows southward. The north part of the general area drains northward by tributaries of the Double Mountain fork of the Brazos River.

Most of the Fluvanna block supports a thick mantle of soil over a southeast dip slope topography. Along the east, south and west sides of the block, where the overburden of soil has been locally removed, formations of Cretaceous and Triassic age are exposed. The dip slope topography terminates abruptly about 4 miles north of Fluvanna in a steep southwest facing escarpment. This escarpment has a relief of approximately 500 feet. Around 200 feet of Cretaceous, chiefly Edwards limestone, is exposed on the face of the escarpment. Underlying the Cretaceous are formations of Triassic age. These formations are composed of coarse conglomerate sandstones, and varicolored red shales and sands. The Triassic is approximately 300 feet in thickness in this area.

The Permian underlies the Triassic, and for all practical purposes, the Permian may be grouped into two main divisions, namely, the "Red Bed series" and the underlying "Big Lime series." Production in the Westbrook Field to the south in Mitchell County, the Chalk Field in Howard County, and the Boren Field in the north in Garza County comes principally from the Big Lime series.

Because of the friable nature of most of the outcrops, and because of poor exposures, surface mapping in this area is rendered almost impossible, consequently most of the geology worked on it is by subsurface work, and the geology shown by the accompanying plat was worked on subsurface. Contours were drawn on top of the Big Lime, the lime tops figured from cuttings, except in a few instances where the wells were drilled before samples were saved. A very pronounced regional high is shown on the plat, running east and west, all of the above mentioned locations being placed on this "high."

The major portion of the oil in the fields of the Permian Basin comes from the Big Lime which underlies the red beds series. The following intervals show the approximate depth of penetration of the Big Lime in these different producing areas:

Chalk Field, Howard County:

Top of lime—first lime pay interval—200 feet.

Top of lime—second lime pay interval—370 feet.

Top of lime—third lime pay interval—800 feet.

Westbrook Field, Mitchell County:

Top of lime—first lime pay interval—900 feet.

Top of lime—second lime pay interval—1,400 feet.

Ira Field, Scurry County:

Top of lime—first lime pay interval—250 feet.

Boren area, Garza County:

Top of lime—first pay interval—800 feet.

Adding 1,900 feet to the above intervals will give the approximate depth at which a well on the Fluvanna block should encounter the corresponding pay horizon for each of these areas. A well drilled to 3,500 feet will test all of the above horizons. By drilling to this depth 100 feet of the lime section should be penetrated.

The fact that the many dry holes drilled in Borden and Scurry County encountered large quantities of sulphur water in the lime, should be an index to the good conditions of porosity in this area.

Several so-called dry holes have been drilled, as the accompanying plat will show, but most of these tests were shallow, not testing the above mentioned pay horizons.

One of the tests shown on the plat is the Mount Pleasant Oil Co.'s No. 1 Beaver, located in the NE Section 425, Block 97, H.&T.C. Survey. This was abandoned at 735 feet after encountering a small amount of gas at 700 feet.

Another test in this area, which had a slight showing of oil was Stivers & Guthrie's No. 1 Snodgrass, located in the NW Section 475, 7 miles northwest of the above described test.

Two other tests, both shallow, were drilled by Mr. Kennedy, one on the Webb farm in the C Section 355, same block and survey as above. This test was abandoned at 1,012 feet. The other test by Kennedy was drilled in Section 322, in the northeast quarter. It was also abandoned at 1,000 feet.

Believing that deeper tests will prove the area in a more conclusive light, possibly encountering one of the pay horizons which is producing in one of the aforementioned fields, the three new tests going in in this area will all be closely watched.

WIDE MARGIN EXISTS IN GASOLINE PRICES

(Continued from Page 36)

on which to base a prediction for the immediate future. From the same sources it was said 64-66 375 endpoint gasoline was purchased at 9¼ cents. The high gravity market was very slow during the week and this gasoline offered was truly distress material.

Natural Gasoline

The general market remained unchanged with 7½ cents as the going price for the great bulk of the A and AA. There were reports of material moving at 7⅜ cents, but these prices were coming from a small manufacturer who was said to be more interested in buying at this time than selling. There is very little G grade available, the Sinclair Oil & Gas Co. being the largest factor, and its production is moving to Sinclair refineries. Some C grade material appears from time to time on the North Texas market that is quoted from one-eighth to one-quarter cent below the Oklahoma quotations, but the volume has been too small to influence the general market.

Kerosene

Refiners known to hold large stocks of kerosene are insisting on 5¾ to 6 cents for their product and are not anxious to move it in view of the possible crude advance and the possible scarcity of the material as more and more West Texas crude is run from which a good grade of kerosene cannot be made except after special and costly processing. Buyers have been bidding 5½ cents but have not been offered much at this price. With the Gulf Coast price at 7¾ cents, the Oklahoma price of 6 cents as the top does justify an optimistic view to be taken of the future of the kerosene export market.

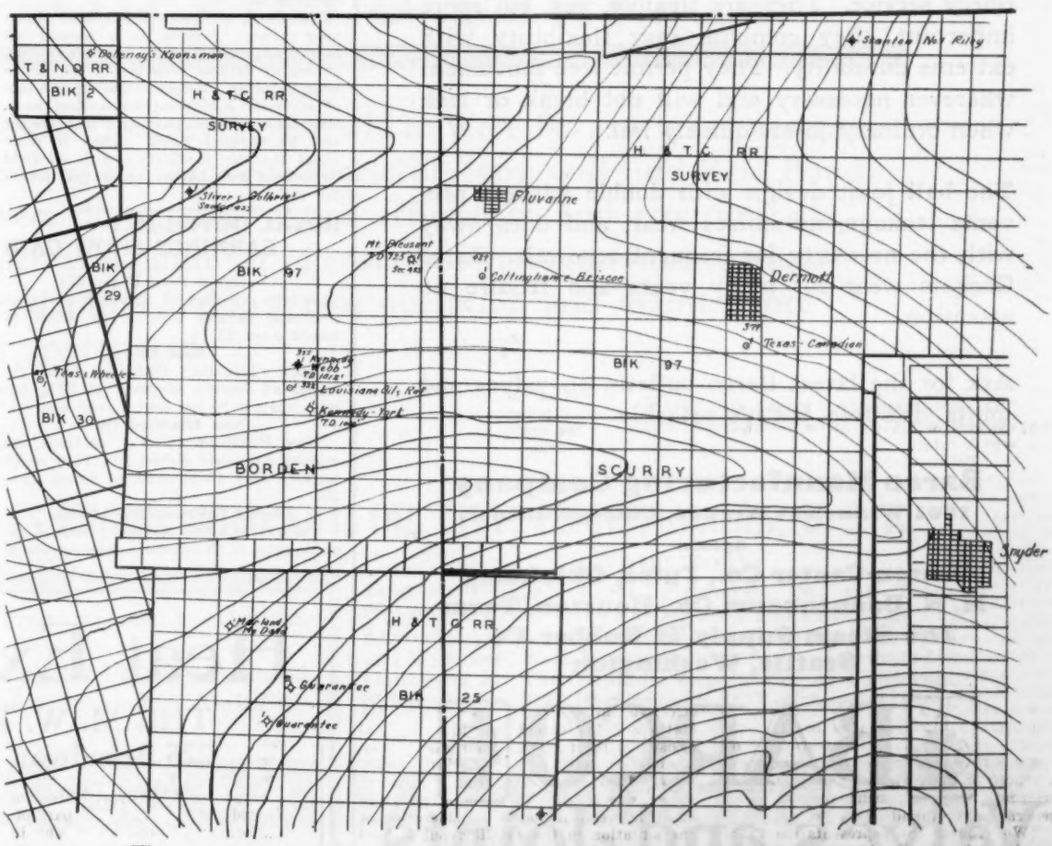
Gas Oil and Fuel Oil

Gas oil continued to be quoted at last week's prices with no thought of advancing it soon. It carries a much higher potential value as a cracking stock but refiners are running more crude and producing more gas oil than their present cracking capacity will permit them to run. Until crude runs are cut or added cracking capacity provided, no material change in the market position of gas oil is anticipated.

Fuel oil stands in about the same position and even less consideration is given the possibility of advancing that market as we enter the summer season with large volumes in storage.

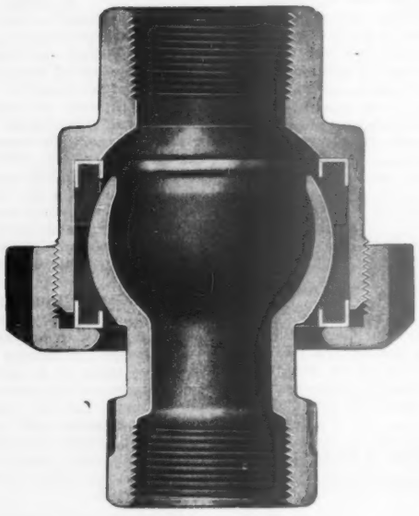
Lub Oil and Wax

Prices on all grades of neutrals remained unchanged with the heavier grades favored in the movement. Cylinder stocks were in fair demand even at peak prices. Oklahoma refiners claim the decline in the eastern market is a move to force the Oklahoma market down and enable the eastern refiners to buy for resale as the general market is again stabilized at



Base map plat showing the subsurface geology for parts of Borden and Scurry Counties, Texas. Contours are drawn on top of the Big lime. Contour interval equals 50 feet. V. E. Cottingham and Glenn O. Briscoe, consulting geologists, San Angelo, Tex., did the work on this area.

Ball Joints and Double Gaskets



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a high level. Except for tank car movements of wax for domestic consumption, the general wax price received was 2½ cents. The market was not ready to absorb all that was offered at that price, however.

SALTY CLARK NOW WITH THE OIL AND GAS JOURNAL

Salty Clark, who has joined the advertising staff of The Oil and Gas Journal, has so many friends in the oil industry of the Mid-Continent that it would be difficult, impossible perhaps, to find a man with a wider acquaintanceship. As a salesman for equipment concerns, including the Worthington Pump & Machinery Corp., the Reading Iron

Salty Clark

Co. and the International Supply Co., Mr. Clark visited all the active oil fields of Oklahoma, Kansas and Texas. His acquaintanceship extends from roustabouts in the field to executives of big companies.

Mr. Clark was born in Chelsea, Okla., near Alluwe, famous as a pioneer oil field, and his entire life so far has been passed in various branches of the petroleum industry. Before taking up the sale of oil field equipment he worked as a roustabout, he ran tour as a tool dresser and he pumped wells. Thus it came about that his familiarity with oil field equipment was gained in actual use of the tools.

ROYAL DUTCH NET EARNINGS SHOW GAIN

(Continued from Page 155)

quarterly dividend of $2 on 8 per cent preferred payable July 1 to stock of record June 15.

Apex Oil

Apex (Trinidad) Oilfields, Ltd., declared an interim dividend of 22½ per cent, against 15 per cent a year ago.

New Bradford Oil

New Bradford Oil Co. declared the regular quarterly dividend of 12½ cents, payable July 15 to stock of record June 29.

Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Saturday, was as follows:

Feb. 2	57.55	April 13	58.52
Feb. 9	55.28	April 20	58.46
Feb. 16	55.35	April 27	58.34
Feb. 23	54.92	May 4	59.13
March 2	56.43	May 11	59.75
March 9	55.96	May 18	59.30
March 16	58.63	May 25	57.73
March 23	58.52	June 1	56.45
March 30	58.57	June 8	58.37
April 6	58.26	June 14	57.76

Experimenting With High Speed Diesel For Use in Airplanes

NEW YORK, June 15—Eastern refiners are watching with a great deal of interest the work undertaken by the National Advisory Committee for Aeronautics toward the development of a high-speed Diesel-type engine for aircraft. This interest has been greatly stimulated by the recent successful tests of the new Packard radial Diesel-burning airplane motor. The tests now under way at Langley Field by the National Advisory Committee are being conducted with a Packard six-cylinder carburetor aircraft engine which has been converted to Diesel operation by the use of a new cam-operated fuel injection pump and injection valves, designed by the committee's engineers. The experimental engine is being used to study the problems of fuel distribution and fuel injection control of multicylinder oil-burning engines.

According to announcement, the committee determined upon the development of the new type of engine for the following reasons:

First. The use of a high flashpoint fuel should greatly reduce the fire hazard in the event of an airplane crash.

Second. With the normal oil engine, the compression ratios are higher than for the carburetor engine without "doped" fuels, which results in a higher thermal efficiency of the engine, with fuel consumption being less than that of the carburetor engine.

Third. The use of this type of engine would result in a great economic gain, since a larger percentage of crude oil production can be used as a fuel.

In order to study the conditions developed inside the firing chambers of the experimental engine, a unique photography equipment has been devised, which makes it possible for engineers to take 25 consecutive photographs, at the rate of 2,000 to 4,000 per second, of the start and development of a fuel oil spray from an oil engine injection valve.

VISIBLE PUMPS REQUIRED

CHICAGO, June 15.—William Cluett, city sealer, has notified local oil companies and distributors of gasoline that an ordinance will be enforced which requires that all pumps or equipment used in the sale of gasoline to motorists be equipped with a device which will allow the purchaser to see the delivery of the motor fuel. Pumps equipped with visible tanks will be approved and those which have no visible tank must be equipped with either such a tank or the visigauge. This ordinance was adopted two years ago subject to the approval of the national organization at its next convention, which was given this month. The ordinance becomes effective on July 1.

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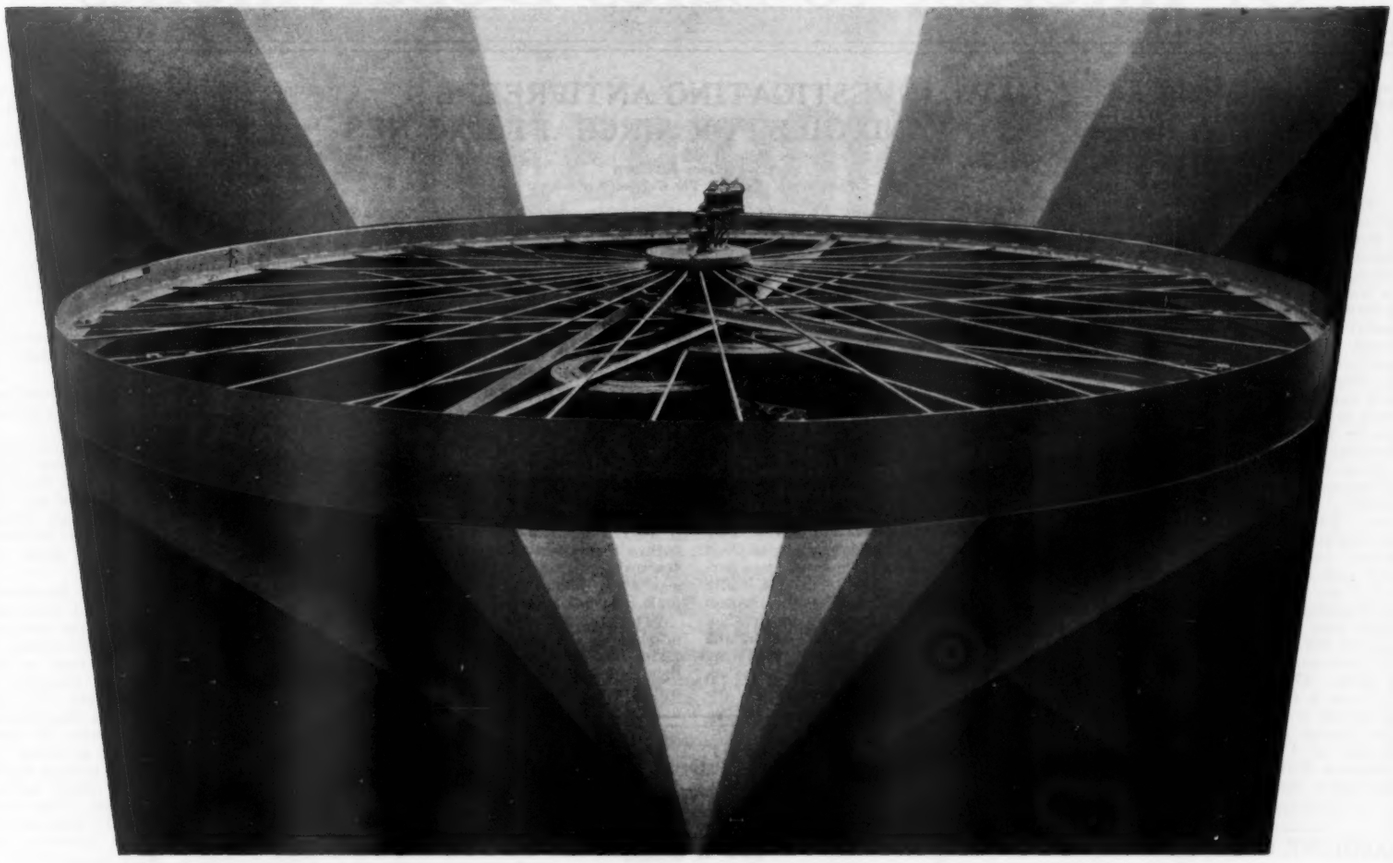

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REID OIL FIELD MACHINERY

Of Interest to Sales Departments

Chicago Post Office Receives Wide Range Of Bids on Gasoline

CHICAGO, June 17.—Bids were received by the motor vehicle department of the Chicago Post Office to supply that department with approximately 250,000 gallons of motor gasoline during the quarter beginning July 1, 1929. The bids will be forwarded to Washington and the successful bidder announced later in the month. Bids were received on two proposals, one for delivery by tank car and the other by tank wagon. Delivery by tank car is to the seller's storage from which the gasoline is received for distribution by the post office tank truck. Opportunity was given each bidder to name a price at a flat rate over the three months, only naming a price based on the market. The bidders and their offers were: Tank car basis, George C. Peterson, one-eighth cent below the tank car market, maximum for the period, 9½ cents plus one-half cent handling charge with 1 per cent for cash, 10 days. Seneca Petroleum Co., tank car price, one-eighth cent below market with a maximum of 9.6 cents, handling charge one-half cent and cash discount 1 per cent, 10 days. The Shaffer Oil & Refining Co. made a flat price of 9½ cents over the period or at the market with a handling charge of one-half cent and cash discount of 1 per cent, 10 days. The Commerce Petroleum Co. bid one-eighth cent below the tank car market, maxi-

(Continued on Page 171)

GASOLINE CONSUMPTION PER CAR MORE IN 1928

Gasoline consumption per car in service reached a new peak in 1928 when the completion of the Bureau of Public Roads reported 23,810,219 cars in service as an average over the year, and the total gasoline consumed amounted to 13,810,944,000 gallons. The 1928 consumption per car was 580 gallons, an increase of 28 gallons per car over the previous year and the high average figures shown during the years of 1917, 1918, etc., have been finally exceeded despite the improved efficiency of motors and a greatly increased number of cars in service.

The increase is due to a number of factors, the actual weight being indeterminate but undoubtedly the increased use of trucks and busses has been a great factor. Improved roads have stimulated tourist travel. The general use of airplanes has become a factor but still very small. The table showing the cars in service and the consumption per car over the last 10 years appears below:

Year—	Estimated cars in service	Demand per car in service (gallons)
1917	4,248,168	557
1918	5,564,978	562
1919	6,856,031	501
1920	8,398,693	506
1921	9,848,328	459
1922	11,351,545	473
1923	13,665,276	482
1924	16,342,927	475
1925	18,774,012	501
1926	20,977,870	524
1927	22,564,354	552
1928	23,810,219	580

ALCOHOL MOTOR FUELS

A special automobile fuel compound containing gasoline with 20 to 35 per cent absolute alcohol has made such progress in Germany that it is being sold from 120 gasoline pumping stations located in Berlin. Fifty additional stations will soon be established from which this fuel will be dispensed.

NAVY INVESTIGATING ANTIFREEZE AND OILS FOR AIRCRAFT ENGINES

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., June 17.—Various oil companies have been in co-operation with the Navy department for the promotion of tests in connection with lubricants and fuels to be used in the new type of internal combustion engine at the Naval Aircraft Factory in Philadelphia, Pa. The new type of engine it is stated will be more compact and rugged than the old water-cooled type. It will consume less gasoline and will be adapted for use in all types of internal combustion engine service.

This work was begun more than five years ago as a study of various antifreeze solutions. During this work, one of the liquids tested showed such interesting properties that the work was expanded from an examination of antifreeze compounds to an investigation of high temperature motors. The work was carried out in a painstaking and scientific manner and the results collected in "Aeronautical Engine Laboratory Report No. 107," dated April 30, 1925. Among the materials tested was prestone (ethylene glycol) which was supplied by the Carbide and Carbon Chemicals Corp. Although this compound had been described in the chemical literature, it had never before been obtainable on a commercial scale. Examination showed it to be an ideal antifreeze, noncorrosive to metals and having many advantages over the old type of antifreeze. To quote from the report:

Analysis of Prestone

"Prestone is a di-hydric alcohol of the formula $C_2H_4(OH)_2$ known in the pure state as ethylene glycol.

"Prestone has a much higher boiling point than water and so does not boil off before the water does, as is the case with other alcohols. It has a freezing point of —18 degrees Centigrade to —14 degrees Centigrade, depending on its purity. A mixture of 70 per cent to 80 per cent with water does not freeze solid at —76 degrees Centigrade. It is odorless, harmless when taken internally, being nontoxic, and has a sweetish taste.

"The specific heat of Prestone is approximately .68. The specific gravity is 1.114. Its color is water white or with light yellowish tinge. It is miscible with water in all proportions and has a strong affinity for water. It is nonelectrolytic and noncorrosive in action on metals and has no apparent detrimental effect on rubber on long immersion. When poured on varnished wood surface no pitting or whitening of the surface resulted.

"Prestone is suitable for use as a cooling medium.

"It is recommended that this material be used in service because of its low volatility and to replace calcium chloride mixtures, especially around duralumin hull aircraft because of its lack of corrosive effect.

"No corrosion of metals was found on immersion in solutions of Prestone of varying percentages.

"Rubber tubing after three months' immersion showed no swelling or apparent deterioration."

Subsequent to this investigation, it occurred to Lieutenant Commander Shoemaker, in charge of the Engine Division, that this same liquid because of its wide availability, high but constant boiling point, and noncorrosive and harmless properties, would be an ideal liquid for cooling airplane motors.

All engines, as Lieutenant Shoemaker points out, must be air-cooled, either directly or indirectly, but in the so-called water-cooled engine that water acts as a cushion absorbing the heat from all the hot spots, distributing and radiating it evenly. If a harmless liquid could be found that would boil at a temperature much above the boiling point of water but below the temperature at which engine operating difficulties become important, several advantages would accrue. The liquid being at a much higher temperature than water would dissipate the heat much more rapidly, therefore less would be needed. This would enable a smaller radiator to be used, which, by lowering the air resistance, would increase the airplane speed. It became necessary to test many liquids before the work was completed which tests are summarized in a report entitled, "Report on Investigation of High Temperature Cooling System," dated March 20, 1929. Of the many liquids tested Prestone, (ethylene glycol) and carbitol (diethylene glycol monoethyl ether) proved to be the best.

Government Report

The report says:

"This test is Part L of an investigation on the possibilities and limitations of liquid cooling for aircraft engines and applies to high temperature cooling with a number of different coolants.

"The coolants tested were water, Halowax oil, prestone and carbitol, liquids whose boiling points range from 212 degrees Fahrenheit to 490 degrees Fahrenheit.

"All runs were made on a torque stand with two Wright E-4 engines. One engine was used with both 6 to 1 and 5.4 to 1 compression ratio pistons while the other was used only with the 5.4 to 1 pistons. Coolants outlet temperatures of from 180 degrees Fahrenheit to 360 degrees Fahrenheit were used in the test.

"Of the three coolants submitted for test, prestone proved to be the most desirable and caribtol was second.

"Coolant outlet temperatures of 350 degrees may be used to advantage in water-cooled aircraft engines by making piston ring side clearances commensurate with those used in air-cooled engines having a similar bore. Aluminum wrist pin plugs are more suitable than brass plugs.

"Prestone is recommended for use in cooling systems designed for high temperature cooling, provided that a jacket outlet temperature of 350 degrees Fahrenheit is not exceeded.

"After approximately 12½ hours of part throttle and 6 hours of full throttle operation using 90-95 lubricating oil, pis-

(Continued on Page 177)

Who's Who
IN PETROLEUM REFINING AND MARKETING

By C. O. Willson

Eighth of a series of articles describing briefly the major refining and marketing companies in the United States.

Gulf Oil Corp. of Pennsylvania

The Gulf Oil Corp. of Pennsylvania which is controlled by the Mellon interests is the holding company for a number of operating organizations in the United States and foreign countries.

In the United States, the refining and marketing properties are operated by the Gulf Refining Co., units of which are incorporated in several states. With its products, marketed under the same name including tradenames in all parts of the country where it has bulk and retail stations, the company has a continuity in marketing which some of the other major organizations with distinct affiliated or subsidiary companies do not have.

The refineries in the United States and their capacities are as follows:

Location—	Daily capacity bbls.
Port Arthur, Tex.	125,000
Fort Worth, Tex.	10,000
Sweetwater, Tex.*	5,000
Philadelphia, Pa.	30,000
Bayonne, N. J.	30,000
Total	200,000

*Under construction.

The Port Arthur refinery, which was the first built by the company, is generally credited with being the largest plant of the petroleum industry. Complete in its operations it has at times run more crude oil to the stills than the rated capacity of 125,000 bbls. daily. The Philadelphia and Bayonne refineries are relatively new, having been built since 1926.

The policy of the Gulf company in regard to refining and marketing has differed from that of some of the large companies. The latter in several cases have established large refining and marketing facilities in excess of their crude oil production and are major buyers from other companies. The Gulf plan has been to expand its refining and marketing facilities in line with the crude oil available from its producing properties. It has never been a large buyer of crude oil and at the present time including its Mexican and South American properties, its crude oil production is approximately equal to its refinery capacity.

Through subsidiary companies the holding company is a large manufacturer of natural gasoline. The capacity of 20 operating plants in May was in excess of 200,000 gallons daily.

Marketing Facilities

The company has been conservative in expanding marketing facilities. Up to this time, its bulk and retail outlets are largely confined to coastal states which are readily served by its four coastal refineries. In Texas where it is one of the largest distributors of gasoline and lubricating oils, the company's Fort Worth refinery serves the northern part of that State with a few stations in Oklahoma and Arkansas. The company recently started construction of a refinery at Sweetwater to serve the West Texas territory.

Along the East Coast extending from Florida to Maine the company is a large distributor, its gasoline sales exceeding that of any other company in at least two states. As yet the company has not become an important factor in any of the inland states.

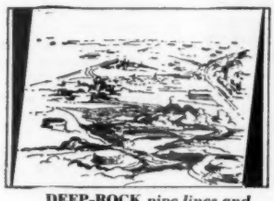
Recently the company inaugurated a national advertising program to promote the sale of its lubricating oils. These oils are manufactured at the Port Arthur refinery. Due to its large production of low gravity crude oils the Gulf company is one of the largest sellers of fuel oils in the Coastal area.

The company's marketing facilities extend to South American and European countries. Although not as active in the export trade market as it has been in the domestic market, the past few years has witnessed a steady expansion in the foreign demand for its products.

DEEP-ROCK TAKES TO THE AIR

Another step in the Shaffer Oil Cycle

DEEP-ROCK *owned and operated wells.*



DEEP-ROCK *pipe lines and refinery.*

DEEP-ROCK *laboratory research and consulting service.*

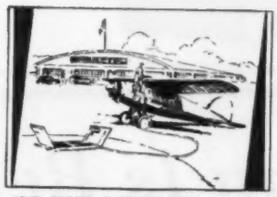
By the establishment of a "Flying Laboratory" as an additional service to the trade in the development and research work in the application of petroleum products to aviation, the DEEP-ROCK organization truly exemplifies the slogan "Pioneers in Public Service".

Through the medium of practical application of the findings in the laboratory and manufacturing and in the refining the DEEP-ROCK organization is able to produce and deliver a tried and true petroleum product for aircraft engines.

DEEP-ROCK Aviation Gasoline conforms in every detail and betters in some respects the strict specifications laid down by the Army and Navy Departments.

DEEP-ROCK Aerial Liberty Lubricant is a specially developed motor oil of unexcelled quality, giving constant service for protracted periods of time.

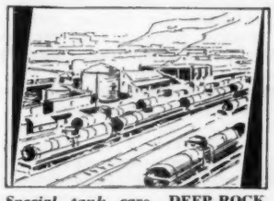
Keep in tune with the new times by availing yourself of the DEEP-ROCK Service.



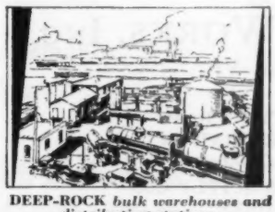
AND NOW, DEEP-ROCK *aviation outlets.*

DEEP-ROCK *Superior Service Stations.*

DEEP-ROCK *tank trucks.*



Special tank cars, DEEP-ROCK *owned.*



DEEP-ROCK *bulk warehouses and distributing stations.*

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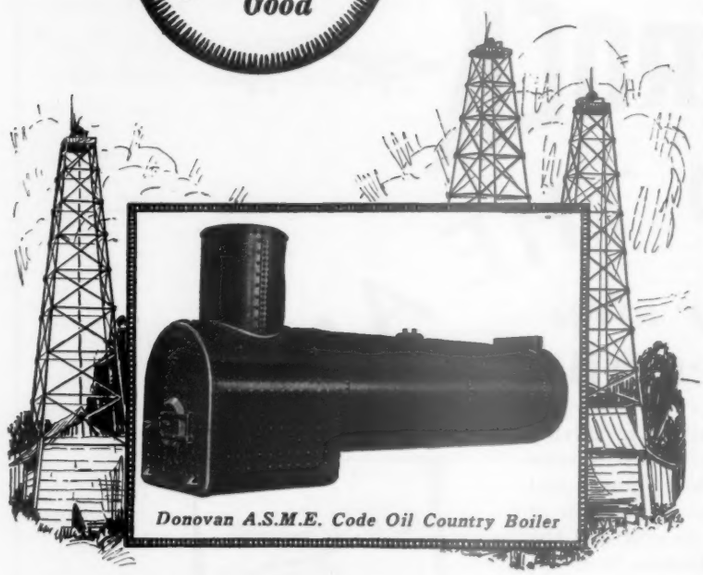
OIL and REFINING COMPANY
General Sales Offices: 300 West Adams Street, Chicago

Donovan Boilers are Consistently Good



Donovan A.S.M.E. Code Oil Country Boiler

Seeing Is Believing

A short time ago, one of the leading oil companies was in the market for boilers. Their chief engineer visited our plant to get a line-up on DONOVAN boilers.

We were testing some 60 H.P. 150 lb. W.P. ASME Code boilers when Mr. Engineer arrived. He was interested so he gave them a thorough inspection. The boilers were under 225 lb. hydrostatic pressure and not a leak could be found. He was impressed, but decided to go further.

He checked the design and construction and knew how to do it, for he had been in the game some 30 years. His verdict was, "I must say the DONOVAN is one of the best, if not the best boiler, I have ever seen."

But the end is not yet. The next we heard from him was in the form of an order for boilers.

To use DONOVANS is to know real boilers.
Repeat orders are the rule.

Manufactured by

DONOVAN BOILER WORKS, INC.

PARKERSBURG, W. VA.

NEW YORK OFFICE—30 Church Street
FRICK-REID SUPPLY CORPORATION
Mid-Continent and Eastern Distributors
GREAT NORTHERN TOOL & SUPPLY CO.
MIDLAND IRON WORKS
Montana Distributors

All Leading Supply Houses Throughout the Eastern Fields Handle

DONOVAN QUALITY PRODUCTS

NONE BETTER

VINELAND TEST IN PUEBLO COUNTY CAUSED FLURRY IN COLORADO

By Tolbert R. Ingram

DENVER, Colo., June 15.—At infrequent intervals during 1928, newspapers in southern Colorado printed references to a wildcat well being drilled in that area by H. C. Courtney. Its location, the nature of the operation and its backers were matters about which little or no information was known by the oil scouts. In fact, it was not generally known that such a well was in existence. Late in the fall the State Immigration Department, which keeps records of all drilling operations in Colorado, began a search for the owners of the well in order to obtain a report on it. Inquiries made at Florence, Canon City and other places failed to result in any information being obtained. Finally, a letter addressed to Mr. Courtney at Pueblo reached the proper parties and under date of December 26, 1928, Courtney made a report to the department, showing that the well was being drilled on the S. P. Shaw farm, NW NW Section 3-22-63, in Pueblo County, by the Rozella Oil Co., that it commenced drilling in February and was shut down for the holidays. The approximate depth to be drilled was given as 1,175 feet.

About a week after this report was made a rumor was heard among the oil scouts that a discovery had been made in the Vineland area 15 miles southeast of Pueblo and on January 6, 1929, the Pueblo Chieftain quoted Courtney as saying that the well had 600 feet of 38 gravity oil standing in the hole at a total depth of 1,190 feet. The news spread like wildfire and as a result there developed an oil boom which in many respect was unlike any other. Scouts from California, Texas, Oklahoma and the Rocky Mountain states swarmed into the area and began investigations. The well was bailed at intervals in the presence of some of the scouts and many of them were convinced that a good grade of crude in small quantities had been found in a true oil sand. It had been drilled by an unincorporated company with an old machine that had seen its best days and an old tractor had been used for power. The outfit broke down in the midst of the first excitement and bailing had to stop for repairs.

While the major companies adopted a watchful waiting policy, pending further developments and reports by their geological departments, a situation existed which resulted in a rush by smaller companies, speculators and drilling contractors. There were a number of drillers who had been active in the Florence-Canon City district that were idle at the time and who wanted to put their machines to work. The time was ripe for some excitement in oil circles. Leasing began on an extensive scale and speculation followed. A few who were in early and knew the way such things go, cleaned up some profit. One company raised $125,000 for drilling with very little trouble. More than 10,000 people visited the well in one day. Rigs began moving in, a townsite company was organized, a hotel was started, and boom conditions began to develop rapidly.

Within a comparatively short time the area for miles around was dotted with rigs and location stakes. Twelve wells actually were drilling at one time, rigs were up for half as many more and locations had been made for 10 to 20 operations. The peculiar feature of the boom was that only one well had reached the supposedly productive horizon and that it had never been tested. Litigation had developed between the owners and claimants and several suits were pending. The "discovery" well had some open hole and operators were bringing pressure to bear on the owners to shut off upper water getting into the sand and to make a test. Finally, operations were resumed, but the pipe parted and the top of the joints left in the hole were mushroomed. It was rumored that lathe shavings had been found in the hole and no test was obtained. However, drilling was going ahead and water wells began to come in. Finally, the owners of the first well, which had been reorganized as the Vineland Oil Co., settled their litigation out of court, and made a deal with the Continental Oil Co. to drill a test located 30 feet south of the discovery. This well was completed and found nothing but water. By this time all the air had been let out of the balloon.

All are not, however, satisfied. The Vineland company has gone back to the spot and is trying to clear the discovery hole, run pipe and make a test to determine the real situation. It has gone farther and through its officers posted an offer of $1,000 reward for convicting evidence as to who had started a rumor about the well being salted and a similar amount for proof that it had been salted. With the exception of the Continental test, most of the other wells drilled were some distance from the discovery and it is possible that the Rozella well was on the edge of a small pool. Several other tests are being discussed, but actual drilling on any of them has not started.

The discovery well, No. 1 Shaw, was located in the SE NW NW Section 3-22-63, and the Continental well was drilled 30 feet to the south of that location. Other wells drilled include the following:

Dickason-Hench Oil Co.'s No. 1 Stanbeck, SW cor. NW Section 19-22-62, water at a total depth of 1,180 feet.

Christy-Frantz Corp.'s No. 1 State, SW cor. NW Section 16-22-63, water over the top. Total depth 900 feet.

Amarillo Production Co.'s No. 1 Pahl, SW cor. NW Section 35-22-63, water in the Dakotas. Total depth 1,252 feet.

Christy-Frantz Corp.'s No. 1 Mannerich, SE NW SW Section 34-21-63, water at 1,100 feet.

Christy-Frantz Corp.'s No. 1 Vey, C SW NW Section 13-22-63, water in the Dakotas. Total depth 1,425 feet.

Morrison and others' No. 1 Dudley-Lubers, SW Section 16-22-63, drilled to 500 feet.

C. W. Sheffer's No. 1 State-Lubers-Oliver, SW NW SE Section 4-22-63, water in the Dakotas. Total depth 1,308 feet.

Apex Oil Syndicate's No. 1, C NE Section 35-21-63, show reported. Stopped drilling at 1,100 feet.

Nordic Oil Syndicate's No. 1 Carr, C SW SW Section 13-22-63, water in the Dakota and Morrison. Total depth 1,400 feet.

Security Oil Trust's No. 1 Bush, SW NW NW Section 14-22-63, show of oil. Shot was followed by water. Total depth 1,053 feet.

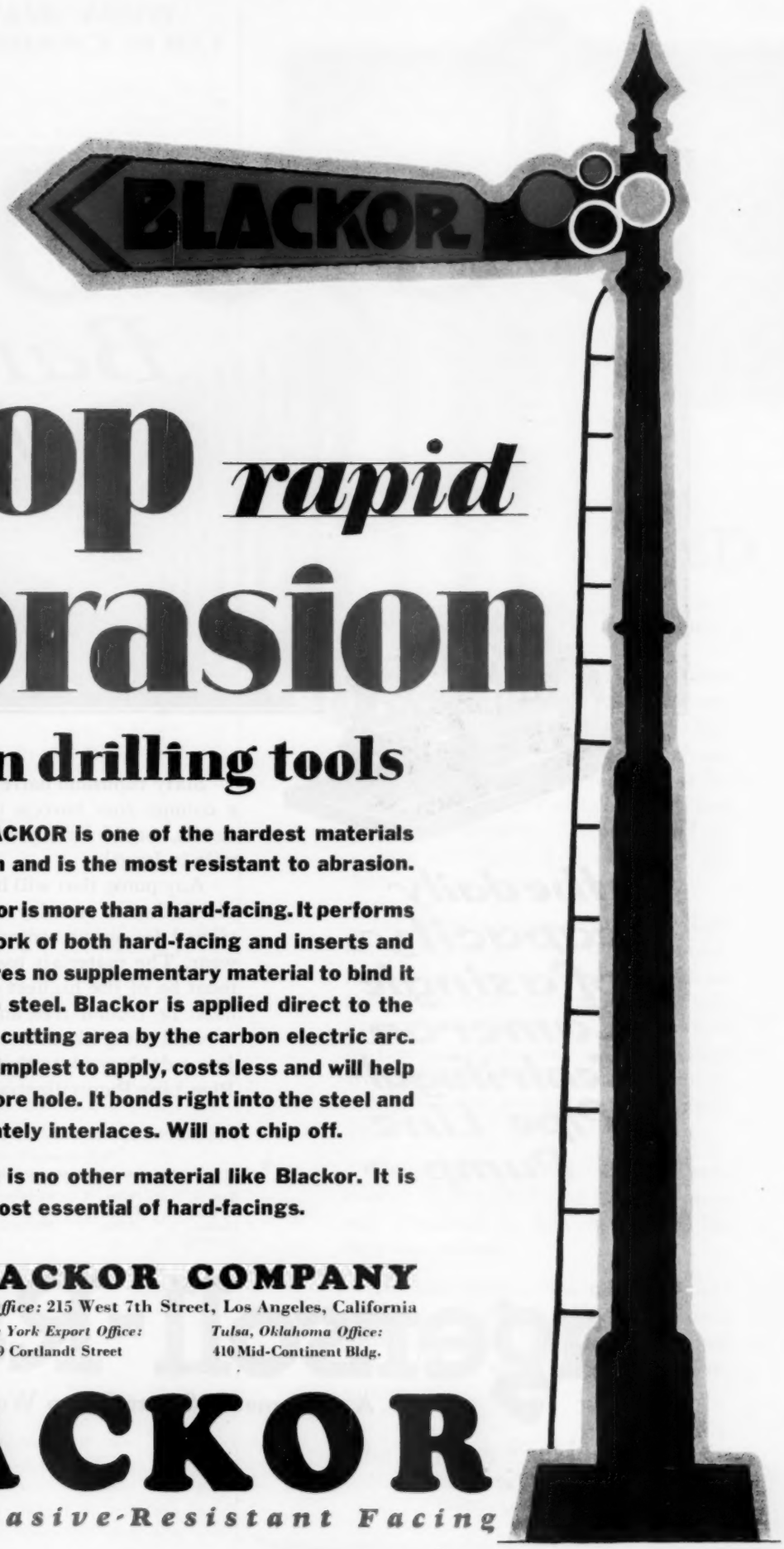
G. E. Stevenson's No. 1 Isis, SW NE Section 1-23-63, drilled to 800 feet.

Log of Continental Well

The log of the Continental Oil Co.'s test 30 feet south of the discovery is as follows:

FORMATION RECORD

From	To	Total feet	Formation
0-	50	50	Yellow clay and gravel.
50-	160	110	Blue shale.
160-	215	55	Black shale.
215-	350	135	Black and blue shale, mixed.
350-	365	15	Black shale and shells.
365-	600	235	Light gray shale.
600-	605	5	Lime.
605-	630	25	Gray shale.
630-	695	65	Shale and lime shells.
695-	700	5	Gray lime.
700-	760	60	White lime.
760-	860	100	Blue shale.
860-	945	85	Black shale.
945-	1,040	95	Black shale, hard.
1,040-	1,043	3	Hard lime.
1,043-	1,180	137	Black shale.
1,180-	1,228	48	Hard sand (1,000 feet water in hole).
1,228-	1,235	7	Blue shale.
1,235-	1,250	15	Sand.
1,250-	1,260	10	Black shale (hole full of water).
1,260-	1,266	6	Sand.
1,266-	1,289	23	Shale.
1,289-	1,291	2	Lime, hard.
1,291-	1,315	24	Black sand.
1,315-	1,322	7	Black shale.
1,322-	1,360	38	Broken sand.
1,360-	1,385	25	Fine white sand.
1,385-	1,400	15	Green sand (water).
1,400-	1,425	25	Water sand.



Stop *rapid* abrasion

on drilling tools

BLACKOR is one of the hardest materials known and is the most resistant to abrasion.

Blackor is more than a hard-facing. It performs the work of both hard-facing and inserts and requires no supplementary material to bind it to the steel. Blackor is applied direct to the tool's cutting area by the carbon electric arc. It is simplest to apply, costs less and will help dig more hole. It bonds right into the steel and intimately interlaces. Will not chip off.

There is no other material like Blackor. It is the most essential of hard-facings.

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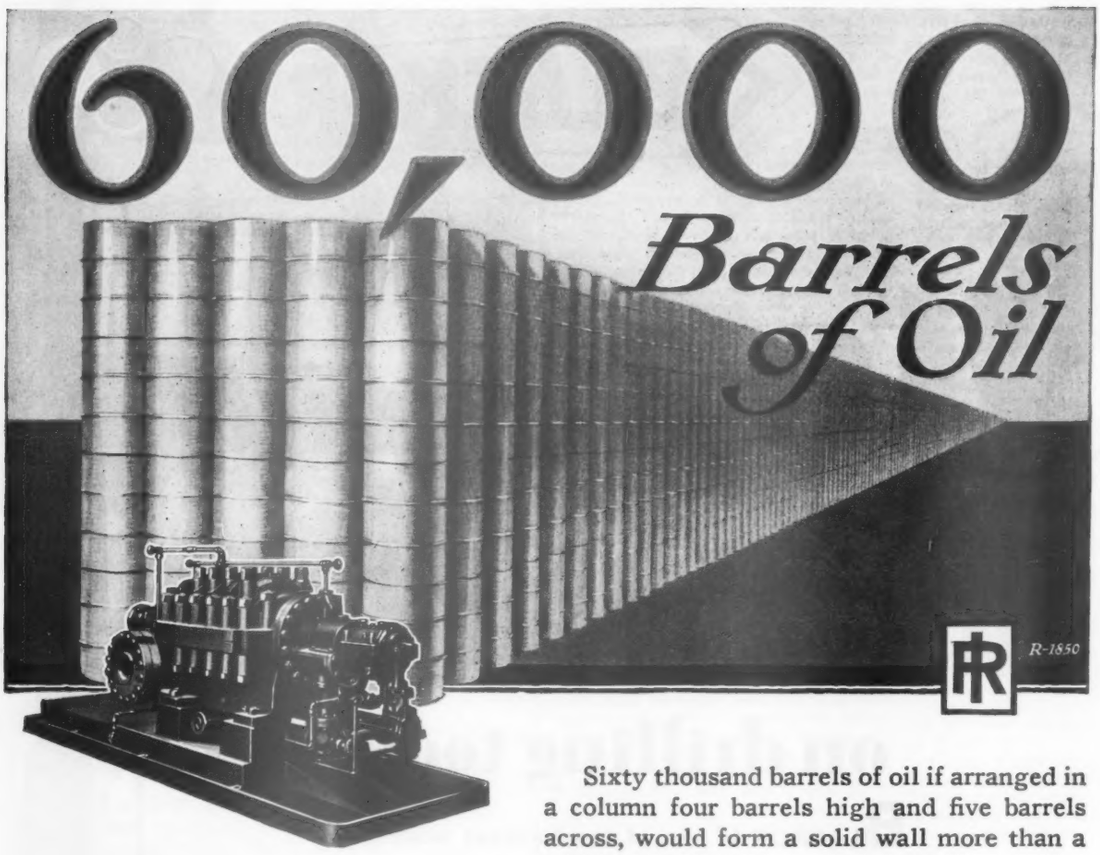
The Super Abrasive-Resistant Facing



the daily capacity of a single Cameron Centrifugal Pipe Line Pump

Sixty thousand barrels of oil if arranged in a column four barrels high and five barrels across, would form a solid wall more than a mile in length.

Any pump that will handle such a quantity of oil, day in and day out, is necessarily designed for great strength and resistance to wear. The materials used in its construction must be of the highest quality. Its operation must be trouble-free and absolutely reliable.

And sixty thousand barrels of oil means just a day's work to the Cameron Centrifugal Pipe Line Pump illustrated above.

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A. S. Cameron Steam Pump Works

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A. S. Cameron Steam Pump Works

AVERAGE MOTOR FUEL TANK WAGON PRICES ADVANCE SHARPLY IN MAY

Gasoline tank wagon and service station prices took a very definite turn upward during May as advances were posted in every section of the United States except the Pacific Coast states and the North Atlantic Coast states. According to The Oil and Gas Journal's 50 cities report, the average tank wagon price, free of taxes on June 1, was 15.72 cents compared with 14.94 on May 1 and compared with 15.22 cents one year ago.

The two advances in the Standard Oil Co. of Indiana territory of 1 cent each, one on May 18 and the second five days later, accounts for the greater share of the .78-cent average advance over the country. General advances posted by the Standard Oil Co. of Louisiana, Continental Oil Co., Standard Oil Co. of Ohio, Standard Oil Co. of Nebraska and the Standard Oil Co. of New York also aided in bringing the June 1 average above any other since January 1 of this year when the average was 16 cents. Unlike the cycle of prices in the past, the recovery from the abnormally low prices of 1927 has been very slow. In the interim there have been several reversals. Even at present, the price is but 1 cent above that on June 1, 1927, but the difference

GASOLINE PRICES EFFECTIVE JUNE 1, 1929

Table showing gasoline tank wagon prices as of June 1, 1929, exclusive of taxes, in 50 representative cities, including the amount and the date of changes since May 1, 1929. High and low prices and state taxes also given.

	May 1	Price changes May			Prices June 1	High and Low 1928		High and Low 1927		Tax June 1, 1928
Birmingham, Ala.	14.0	15 17.0	....	....	17.0	18.0	14.0	18.0	14.0	5.0
Phoenix, Ariz.	14.0	....	....	....	14.0	18.0	14.0	19.0	16.0	4.0
Little Rock, Ark.	12.0	27 15.0	....	....	15.0	16.0	11.0	15.0	11.0	5.0
San Francisco, Calif.	16.0	....	....	....	16.0	14.0	14.0	14.0	9.0	3.0
Denver, Colo.	15.0	16 13.0	24 14.0	....	14.0	16.0	13.0	18.0	13.0	4.0
Hartford, Conn.	16.0	....	....	....	16.0	18.0	16.0	22.0	18.0	2.0
Dover, Del.	16.0	....	....	....	16.0	18.0	16.0	19.0	16.0	3.0
Jacksonville, Fla.	17.0	....	....	....	17.0	18.0	13.0	16.0	10.0	5.0
Atlanta, Ga.	17.0	....	....	....	17.0	18.0	13.0	18.0	10.0	4.0
Boise, Idaho	19.5	24 20.5	....	....	20.5	20.5	19.5	22.5	19.5	4.0
Peoria, Ill.	14.2	18 15.2	23 16.2	....	16.2	15.2	9.0	18.2	9.0	...
Chicago, Ill.	14.0	18 15.0	23 16.0	....	16.0	15.0	14.0	17.0	14.0	...
Indianapolis, Ind.	14.2	18 15.2	23 16.2	....	16.2	15.2	10.2	18.2	10.2	4.0
Des Moines, Iowa	14.5	18 15.5	23 16.5	....	16.5	15.5	11.9	16.0	9.9	3.0
Wichita, Kans.	12.8	18 13.8	23 14.8	....	14.8	13.8	10.8	15.8	10.8	2.0
Louisville, Ky	15.0	....	....	....	15.0	16.0	13.0	17.0	13.0	5.0
New Orleans, La.	10.5	11 9.5	22 10.5	25 11.5	11.5	14.5	10.5	14.5	11.5	*5.0
Augusta, Me.	16.0	....	....	....	16.0	18.0	17.0	22.0	17.0	4.0
Baltimore, Md.	14.0	....	....	....	14.0	16.0	15.0	19.0	16.0	4.0
Springfield, Mass	16.0	....	....	....	16.0	18.0	16.0	22.0	12.0	2.0
Detroit, Mich.	14.8	18 15.8	23 16.8	....	16.8	15.8	11.8	18.8	11.8	3.0
Duluth, Minn.	15.5	18 16.5	23 17.5	....	17.5	16.5	12.5	19.5	12.5	2.0
Natchez, Miss	15.5	....	....	....	15.5	16.5	12.5	16.5	12.5	5.0
Kansas City, Mo.	13.9	18 14.9	23 15.9	....	15.9	14.9	10.9	17.9	10.9	*3.0
Helena, Mont.	19.5	24 20.5	....	....	20.5	20.5	19.5	22.0	19.5	5.0
Omaha, Neb.	14.25	18 15.25	23 16.25	....	16.25	15.25	13.25	14.25	12.25	4.0
Reno, Nev.	20.0	....	....	....	20.0	18.0	18.0	18.0	15.0	4.0
Newark, N. J.	14.0	....	....	....	14.0	16.0	15.0	19.0	16.0	3.0
Albuquerque, N. Mex.	16.0	3 15.0	30 16.0	....	16.0	17.0	14.0	20.0	16.0	5.0
New York, N. Y.	17.0	....	....	....	17.0	18.0	17.0	22.0	17.0	2.0
Charlotte, N. C.	14.0	....	....	....	14.0	17.0	15.0	18.0	16.0	4.0
Fargo, N. Dak.	16.9	18 17.9	23 18.9	....	18.9	17.0	12.0	20.0	12.0	2.0
Cleveland, Ohio	14.0	6 15.0	29 16.0	....	16.0	16.0	14.0	19.0	14.0	4.0
Tulsa, Okla.	12.0	3 11.0	18 10.0	....	10.0	14.0	10.0	15.0	10.0	3.0
Portland, Ore.	16.5	....	....	....	16.5	14.5	14.5	14.5	11.0	3.0
Philadelphia, Pa.	16.0	....	....	....	16.0	18.0	15.0	19.0	12.0	†3.0
Providence, R. I.	13.0	....	....	....	13.0	19.0	17.0	22.0	17.0	2.0
Charleston, S. C.	14.0	....	....	....	14.0	17.0	15.0	19.0	15.0	6.0
Huron, S. Dak.	16.3	18 16.3	22 17.3	....	17.3	16.3	14.5	19.5	11.5	4.0
Memphis, Tenn.	11.0	22 12.0	25 13.0	....	13.0	16.0	12.0	15.0	10.0	3.0
Dallas, Tex.	11.0	....	....	....	11.0	14.0	9.0	13.0	10.0	2.0
Salt Lake City, Utah	17.5	24 18.5	....	....	18.5	18.5	16.5	20.5	16.5	3.5
Burlington, Vt.	15.0	....	....	....	15.0	18.0	17.0	22.0	17.0	3.0
Norfolk, Va.	14.0	....	....	....	14.0	16.0	14.0	18.0	16.0	5.0
Washington, D. C.	14.0	....	....	....	14.0	16.0	15.0	19.0	16.0	2.0
Charleston, W. Va.	14.0	....	....	....	14.0	17.0	15.0	18.0	16.0	4.0
Milwaukee, Wis.	14.1	18 15.1	23 16.1	....	16.1	15.1	13.1	18.1	13.1	2.0
Casper, Wyo.	15.0	19 16.0	24 17.0	....	17.0	16.0	14.0	18.0	14.0	4.0
Seattle, Wash.	16.5	....	....	....	16.5	14.5	14.5	14.5	11.0	2.0
Minneapolis, Minn.	15.2	18 16.2	23 17.2	....	17.2	16.2	11.0	15.2	11.1	2.0
Average price	14.94	....	....	....	15.72	16.54	13.54	18.15	13.55	3.27

*State tax 2 cents, remainder city tax. †Paid by dealer.

QUALITY CONTROLLED

An attainment of the manufacturing processes of The Garlock Packing Company

GARLOCK-353 Oilblack Rubber Sheet is one of the resultant products of the Quality Controlled Processes of The Garlock Packing Company. This commodity was developed after years of laboratory and field experiments to fill the demand for a sheet packing that would resist the deteriorating action of oils.

The manufacturing of Oilblack Rubber Sheet Packing, from the compounding through the mixing of the batch on the rubber mills, the calendering, vulcanization and inspection, is supervised by Garlock Craftsmen. These skilled workers receive their training through many years of service in the Garlock Factories.

The crude materials used in producing GARLOCK-353 have to meet our standards, by laboratory test, before acceptance.

Oilblack Rubber Sheet Packing will give economical service when used against heavy or light oils, hot or cold water, steam, ammonia and alkali solutions.

The Garlock Packing Company

Manufacturers of Mechanical Packings

Palmyra, N. Y., U.S.A.

Can You Pick the Best Motor?

It is the dollars-cost-per-unit of productive capacity that determines the economy of one type of motor over another, not the dollars per horsepower. Wagner has built up a well-rounded motor service to industry...Wagner makes every commercial type of a. c. motor.

Whatever your requirements, Wagner can recommend without prejudice the right motor for the job.

Literature on Request

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6400 Plymouth Avenue, St. Louis, U. S. A.
Wagner Sales Offices & Service Stations in 25 Principal Cities

Products: FANS . . . . Desk, Wall and Ceiling
TRANSFORMERS . . . Power, Distribution and Instrument
MOTORS . . . Single-phase, Polyphase and Direct Current

Wagner ...quality

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in the situation comes about in that prices two years ago were on the down grade while the prices over the last three months indicate prices are headed definitely upward.

AVERAGE TANK WAGON PRICES IN 50 CITIES

(Exclusive of Tax)

June 1, 1927	14.72
July 1	14.86
August 1	14.89
September 1	14.62
October 1	14.39
November 1	14.32
December 1	14.21
January 1, 1928	14.29
February 1	14.33
March 1	14.71
April 1	14.81
May 1	15.02
June 1	15.22
July 1	15.29
August 1	15.74
September 1	16.04
October 1	16.34
November 1	16.28
December 1	15.98
January 1, 1929	16.00
February 1	15.11
March 1	14.73
April 1	14.90
May 1	14.94
June 1	15.72

CHICAGO POST OFFICE RECEIVES GASOLINE BIDS

(Continued from Page 164)

mum 10¼ cents, handling charge one-half cent and cash discount 1 per cent, 10 days. Jewett & Sowers Oil Co., one-eighth cent above tank car market, maximum 10 cents, handling charge one-half cent and 1 per cent cash discount. The Shell Petroleum Corp. made a price of 11 cents flat over the period with 1 per cent cash discount and no handling charge. In the proposition for tank wagon deliveries the Shaffer Oil & Refining Co. made a flat price for the three months of 13 cents or 4 cents below the Chicago service station price or 3 cents below that price with a maximum of 13 cents less cash discount of 1 per cent, 10 days. The bid of the Standard Oil Co. of Indiana was identical with that of the Shaffer Co., except that no maximum was named. The George C. Peterson Co. bid 5 cents below the service station price, maximum 14 cents, less cash discount of 1 per cent 10 days.

DRILLER IS DROWNED

CHATHAM, Ontario, June 15.—A. Sarazan, a driller employed with Smith & Travers of Sudbury, was drowned in the Abitibi River while en route for northern Ontario, in connection with a drilling contract for the Ontario government in the oil and lignite area near Blacksmith Rapids.

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless otherwise marked)

(Continued from Page 53)

Roth & Parrent's No. 1 Brombrowsky, NW cor. Sec 26-22-1e ..... Drlg. 2,375 ft.
Mrs. Gay et al's No. 1 Grove, C NW NE NW Sec. 29-23-1w ..... Underreaming 8-in. casing 2,720 ft.
Slick & Cornell's No. 1 Gatz, NW cor. SE Sec. 36-22-1e.. Drlg. 2,862 ft.
Jolly & Ogg's No. 1 Randall, NE cor. NE Sec. 11-24-1w... Shut down 3,444 ft.
Patton et al's No. 1 Dunning, SE cor. SW NE Sec. 26-24-1. Fishing 2,925 ft.
Rosenthal et al's No. 1 Ingalls, C NW SW Sec. 24-23-3w. Shut down 2,370 ft.
Jolly & Ogg's No. 1 Hupp, SE cor. NE Sec. 23-23-1w... Underreaming 8-in. csg. 2,945 ft.

HODGEMAN COUNTY

Phillips Pet.'s No. 1 Hausman, NW NE NE Sec. 30-22-22w ..... Rig.

JEFFERSON COUNTY

Wichita Oil Co.'s No. 1 Simpson, NW cor. SW SW Sec. 19-10-17 ..... Rigged up and shut down.

KINGMAN COUNTY

Gypsy Oil Co.'s No. 1 Kincaid, NE cor. NW, Sec. 18-29-5w ..... Drlg. 3,345 ft.

LANE COUNTY

Robinson's No. 1 Dickerson, Sec. 11-18-27w..... Shut down 2,650 ft.
Blankenship Pet. Co.'s No. 1 Schaeffer, NE cor. NE Sec. 24-16-28w ..... Spudded and shut down.

MARSHALL COUNTY

Skelly Oil Co.'s No. 1 Mehl, NW NE Sec. 11-20-4e ..... Shut down 50 ft.
Irwin et al's No. 1 Cooper, NE NW Sec. 10-3-7e..... Drlg. 2,020 ft.
Empire O. & R. Co.'s No. 1 Scally, SW NE NE Sec. 28-19-2e ..... Underreaming 8-in. casing 2,440 ft.

MARION COUNTY

Shell Pet. Corp.'s No. 1 Scully, NW NE Sec. 34-18-2e.... Rig.
Hobworth et al's No. 1 Skiles, SE NW NW Sec. 30-21-3e. Shut down 1,945 ft.
Hartman & Skaer and White Eagle's No. 1 Kline, NE NW Sec. 28-18-3e ..... Hole full water 2,960-65 ft.; abandoned.
Connell & Prairie's No. 1 Zirak, SE cor. SW Sec. 3-18-3e ..... Drlg. 2,606 ft.
General Utilities Co.'s No. 1 Burkholder, Sec. 18-19-3e... Fishing 2,760 ft.
General Utilities Co.'s No. 1 Propp, NE cor. SE SW Sec. 8-19-4e ..... Rig.
A. E. Meyers' No. 1 Papp, SW cor. SW NE Sec. 10-18-2.. Drlg. 3,070 ft.
Frank L. Moore's No. 1 Miller, NE cor. NE Sec. 26-19-1.. Underreaming 6-in. csg. 2,780 ft.

McPHERSON COUNTY

E. W. Marland's No. 1 Swanson, NE SW NE Sec. 36-18-4w. Rig.
Slick, Pryor & Lockhart's No. 1 Gratton, C NE NW NW, Sec. 34-20-3w ..... Rig.
Helmerich & Payne's No. 1 Klassen, SE NE NE Sec. 14-21-1w ..... Shut down 50 ft.
McPherson Oil & Gas Co.'s No. 1 Decker, C SE Sec. 11-19-2w ..... Drlg. 2,525 ft.
Helmerich & Payne's No. 1 Rosen, NE cor. SE SW Sec. 26-21-2w ..... Drlg. 2,490 ft.
McPherson Gas Co.'s No. 1 Chinberg, NW cor. Sec. 18-19-2w ..... Drlg. 875 ft.
McPherson O. & G. Co.'s No. 1 Rasmusson, SW cor. Sec. 8-18-3w ..... Shut down 805 ft.
Ted Washabaugh's No. 1 Vosshell, NE cor. NE Sec. 9-21-3w ..... Fishing 3,301-04 ft.; show of o'.
McPherson Gas Co.'s No. 1 Reitz, NW cor. SE SW Sec. 1-20-2w ..... Drlg. 2,453 ft.
J. H. Tatlock's No. 1 Hayer, C SW NE Sec. 32-20-1w.... Drlg. 2,445 ft.

MORRIS COUNTY

Hiatt et al's No. 1 Blythe, NW NE c 15-5e... .... Drlg. 2,225 ft.

NESS COUNTY

E. W. Marland, Inc.'s No. 1 Moses, NE SE Sec. 7-18-25w.. Rig.
Barnsdall Oil Co.'s No. 1 Lauk, C SW Sec. 35-18-21w... 4,224-29 ft.; 100 oil, 100 water testing.

OSBORNE COUNTY

Mid-Kansas' No. 1 Boyce, SE cor. NW Sec. 18-6-13w.... Shut down 300 ft.
Empire O. & R. Co.'s No. 1 Crest, SE NE Sec. 30-9-14w. Shut down 3,774 ft.
Trees Oil Co.'s No. 1 Payenter, NE cor. SE SE Sec. 22-6-15 ..... Drlg. 1,550 ft.
S. D. Jarvis' No. 1 Jellison, SE cor. SE Sec. 13-10-15w... Drlg. 3,390 ft.

OTTAWA COUNTY

Anderson et al's No. 1 Bank, NE cor. NW Sec. 28-10-2w. Drlg. 3,675 ft.

PAWNEE COUNTY

F. C. Troupe's No. 1 Lovett, CEL NE NE Sec. 31-21-16w. Shut down 1,560 ft.

PHILLIPS COUNTY

Watsonian-British American's No. 1 Wellman, C SW SW Sec. 34-2-19w ..... Drlg. 2,390 ft.

STANLEY G. FLAGG & CO., Inc., Philadelphia, Pa.

MALLEABLE FITTINGS MANUFACTURING SINCE 1854

STEAM — GAS — FF — WATER — OIL

RED RING
Flange Unions

Ground Joint—Brass to Iron Seats

ALL RED RING flange unions are carefully tested and inspected, and being made of *Furnace-Refined* malleable iron, are always dependable.

The opening through the seats is larger than the outside diameter of the pipe hence protruding pipe cannot injure the seat.

RED RING Flange Unions are heavier and in most sizes have more bolts than any other flange union of similar type.

FLAGG "300" UNION

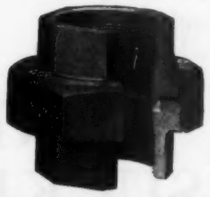

Fig. 338

Improved design with long threads. Each union air tested under water. Steam working pressure 300 lbs. *Conforms to Federal Specification No. 580.*

BRASS TO IRON SEAT

FLAGG UNION

Fig. 337

Each Union individually air tested under water. Steam working pressure up to 250 pounds. *Conforms to Federal Specification No. 393*

FLAGG PRODUCTS

Standard Malleable Fittings
Flagg Ex. Hvy. Malleable Fittings
Bushings—Plugs—Flange Unions
Std. and Ex. Hvy. Companion Flanges
Red Ring Flange Union
Brass to Iron Seat—No Gasket
Flagg Unions—Ground Joint
250 lbs. S.W.P.
Flagg 300 Unions—Ground Joint
300 lbs. S.W.P.
Oil Line and Ex. Hvy. Malleables for
Oil - - Gas - - Refinery
Extra Heavy Cast Iron
250 lbs. S.W.P.
Medium Pressure Cast Iron
175 lbs. S.W.P.

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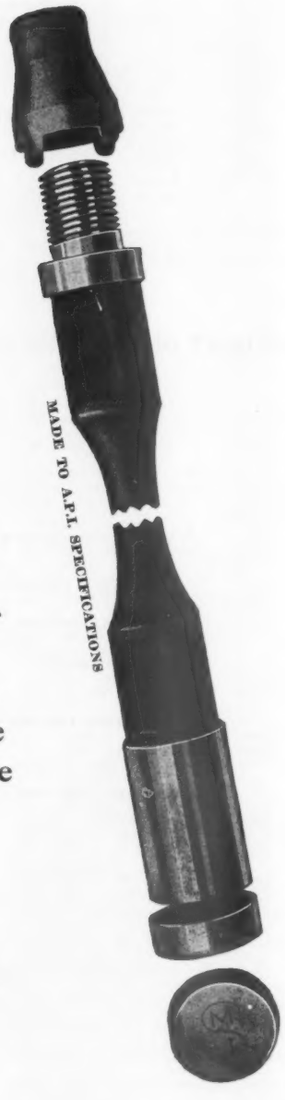
JONES SUCKER RODS

Every Jones A.P.I. Sucker Rod Joint is a product of micrometric accuracy, inspected with master gauges by tool experts long schooled in that high standard of workmanship that has made Jones H. M. Sucker Rods famous for their tight, snug-fitting joints throughout the petroleum world.

If you would profit by these precision methods of sucker rod manufacture always specify Jones High Manganese Sucker Rods.



JONES H. M. SUCKER RODS

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Republic Supply Company

GENERAL OFFICES - HOUSTON, TEXAS

OIL AND GAS WELL SUPPLIES

ROTARY AND CABLE TOOLS

PRATT COUNTY

O'Haver & Jones' No. 1 Lunt, C SW NW Sec. 15-28-14w..Fishing 2,540 ft.
Empire O. & R. Co.'s No. 1 Henderson, SW cor. Sec. 35-26-4w .....Drlg. 3,225 ft.

RENO COUNTY

Skelly Oil Co.'s No. 1 Birkett, NE SW Sec. 30-24 7w....Rig.
Perry et al's No. 1 Oswald, NE cor. NE SE Sec. 30-22-5w .....Drlg. 3,520 ft.
Milmar Oil Co.'s No. 1 Strickley, SW cor. SW Sec. 17-26-5w .....Fishing 2,550 ft.

RICE COUNTY

Allison & Fitzwilliams' No. 1 Poland, NE cor. SW NE Sec. 36-19-8w .....Cellar.
Higgins & Steinbuchel's No. 1 Shurr, NE cor. SW Sec. 21-20-10w .....Gas testing 2,305-98 ft.

RILEY COUNTY

Derby & Shaw's No. 1 Lindstrom, NE cor. Sec. 32-7-5e...Rig.

RUSSELL COUNTY

Allison & Fitzwilliams' No. 1 Mohenny, NW SE Sec. 5-14-12w .....Drlg. 2,440 ft.
Phillips Pet. Co.'s No. 1 Salback, SE NW Sec. 32-12-14w ..... Drlg. 3,196 ft.
T. B. Slick's No. 1 Sellans, SW cor. NE Sec. 36-15-13w ..Drlg. 3,300 ft.

ROOKS COUNTY

Kruger et al's No. 1 Steis, NW SE SW Sec. 12-9-16w...Shut down 50 ft.
Burford-Brim's No. 1 Toxa, Sec. 22-9-17w.....Spudded; shut down.
Prairie O. & G. Co.'s No. 1 Gick, SE cor. Sec. 22-9-19w..Drlg. 3,585 ft.
Prairie O. & G. Co.'s No. 1 Sandberg, C SW Sec. 20-9-18w ..... Shut down 3,860 ft.

RUSH COUNTY

Sinclair Oil & Gas Co.'s No. 1 Seur, C SW NW NW Sec. 8-18-17w ..... Drlg. 2,186 ft.
Danciger Oil Ref. Co.'s No. 1 Swindt, SW cor. Sec. 22-17-17w .....Drlg. 2,810 ft.
Barnsdall Oil Co.'s No. 1 Brock, C SE SE Sec. 21-17-17w .....Fishing 2,460 ft.
Central Commercial Oil Co.'s No. 1 Brock, SE cor. SW SW Sec. 12-17-16w ..... Shut down 50 ft.
Danciger Oil Ref. Co.'s No. 1 Poland, NE cor. SW NE Sec. 17-19-17w ..... .Drlg. 3,420 ft.
Wilcox Oil & Gas Co.'s No. 1 Schwartzkopf, NE cor. NW SW Sec. 27-17-17w .....Drlg. 3,573-97 ft.; dry drlg. 3,660 ft.
Wilcox O. & G. Co.'s No. 1 Woodward, NE cor. NE Sec. 35-27-17w .....Drlg. 3,370 ft.

SALINE COUNTY

Dixie Oil Co.'s No. 1 Muir, C SW SE Sec. 6-15-2w..... .Drlg. 2,446 ft.
Kinney-Coastal Co.'s No. 1 Hughes, NE cor. Sec. 20-13-4w.Shut down 50 ft.
M. Estey et al's No. 1 Peterson, C NE Sec. 6-16-5w.....Spudded and shut down.
Boyle et al's No. 1 Miller, SW cor. SE Sec. 21-16-1w... Drlg. 3,030 ft.
Kenney Coastal Oil Co.'s No. 1 Beal, C NW Sec. 23-14-5w .....Drlg. 3,465 ft.

SEDGWICK COUNTY

Johnson & Marshall's No. 1 Roy, NE cor. SE SW Sec. 23-29-1w .....Spudding.
Larlo O. & G. Co.'s No. 1 Teachorff, NE cor. SW Sec. 27-29-1w .....Rig.
Kyle et al's No. 1 Pinney, SW NW SE Sec. 29-28-1w....Rig; spudding.
Simmons & Canary's No. 1 Scott, NE NW NE Sec. 22-26-1e .....Drlg. 850 ft.
T. B. Slick's No. 1 Rosenhagen, SW SE NE Sec. 33-27-4w .....Drlg. 3,637 ft.
Hammond & Stout's No. 1 Roeder, SW NW Sec. 23-27-2w .....Shut down 1,688 ft.
Twist et al's No. 1 Armstrong, NE NW Sec. 28-26-1e...Rig; spud; shut down.
Shawver et al's No. 1 Scott, SE cor. SW SW Sec 10-28-1e .....Drlg. 2,700 ft.
Barnett O. & G. Co.'s No. 1 Davidson, NW cor. NW SW Sec. 27-26-1e .....Drlg. 2,400 ft.
Kellar & Lewis' No. 1 Buckles, NW cor. SE Sec. 3-28-1w.. 3-28-1w .....Cleaning out 350 ft.
Magnolia Pet. Co.'s No. 1 Wise, NW cor. NW Sec. 36-28-2w .....Drlg. 3,515 ft.
Blankenship et al's No. 1 Tuttle, SW cor. NW Sec. 1-27-1 .....Set 8-in. casing 3,380 ft.
Twist et al's No. 1 Joseph, CNL SW SE Sec. 4-25-1w....Shut down 1,980 ft.
Miller Wentz' No. 1 Shaffer, NE cor. NE Sec. 9-27-2w...Drlg. 2,775 ft.
Kroder et al's No. 1 Harden, SW cor. NW SW Sec. 20-26-1e .....Shut down 1,100 ft.
Morgan et al's No. 1 Corn, SW cor. NE Sec. 28-25-1w ...Drlg. 3,675 ft.
Washabaugh et al's No. 1 Harrison, NW cor. NE NE Sec. 2-26-2w ..... .Shut down 350 ft.
Sullivan et al's No. 1 Shelly, NW cor. NE SE Sec. 32-29-2e .....Shut down 2,990 ft.
Hartman & Skaer et al's No. 1 Hutchinson, SE cor. SE SW Sec. 23-28-3w ..... Drlg. 3,835 ft.
Producers Oil Co.'s No. 1 Jones, SW cor. NE SE Sec. 31-26-2 .....Cleaning out 3,012 ft.
LaFont et al's No. 1 Carlton, C SE SE SW Sec. 24-28-1e.Shut down 1,200 ft.
Frank Wahn's No. 1 Wilson, C NE NW SE Sec. 9-26-1w.Underreaming 6-in. casing 3,290 ft.
Connell & Slick's No. 1 Mohannah, C NE SE SE Sec. 3-25-1w ..... .Rig and tools.

SHERMAN COUNTY

A. L. Henson et al's No. 1 Murry, NE cor. SE NW Sec. 22-7-40w ..... Shut down 3,035 ft.

STEVENS COUNTY

Trees Oil Co.'s No. 1 Thompson, C NE SW Sec. 3-35-38w.Shut down 500 ft.
W. Sidwell et al's No. 1 Kelly, SW cor. NE Sec. 16 34-38w ..... Shut down 1,320 ft.

SMITH COUNTY

Phillips Pet.'s No. 1 Clydesdale, SE NW Sec. 23-5-14w..Rig.
Mid-Kansas Oil & Gas Co.'s No. 1 Unknown, NE cor. NE Sec. 4-2-13w .....Drlg. 3,946 ft.

SUMNER COUNTY

Morgan & Carey's No. 1 Hawkins, SW SE Sec. 9-34-1e..Spudding.
Gypsy & Blankenship's No. 1 Robeck, C SW SW Sec. 27-34-4w .....Drlg. 3,529 ft.
Davidson et al's No. 1 Strickland, SW cor. SE Sec. 12-35-1w .....Rig.

TREGO COUNTY

Day et al's No. 1 Gugler, SW NE NE Sec. 36-12-21w ....Rig.
Day et al's No. 1 Unknown, NE NW SW Sec. 2-11-21w...Spudding.
Central Commercial Oil Co.'s No. 1 Ellis, NE cor. SW NE Sec. 20-13-21w .....Hole full oil 3,960-72 ft.; 284 bbls. in 24 hours.; pulling big pipe.

WASHINGTON COUNTY

McCool & Vincent's No. 1 Linn, NW cor. NE Sec. 27-4-3 Drlg. 1,500 ft.

WALLACE COUNTY

Morton & Entyre's No. 1 Parker, SE cor. NW SW Sec. 20-13-41w ..... .Rig.

WILDCAT OPERATIONS IN NEBRASKA

(Descriptions are East unless otherwise marked)

FRANKLIN COUNTY

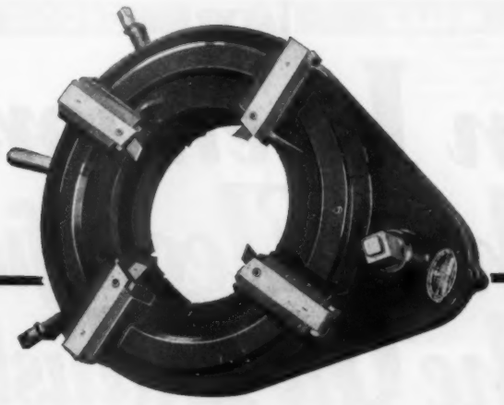
U. R. Drlg. Co.'s No. 1 Brunkle (twin well), C NW SW NE Sec. 2-3n-13w .....Rig.

FURNAS COUNTY

Southwestern Pet. Corp. of Nebraska's No. 1 Montague, SE SW SW Sec. 28-1n-22w .....Shut down 1,510 ft.
Graham Bros.' No. 1 Edwards, NW SW Sec. 13-2n-22w..Shut down 3,150 ft.

WEBSTER COUNTY

Mid-States Exploration Co.'s No. 1 Platt, C SE one-half Sec. 3-1n-11w .....Rig.



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—a "TOLEDO" No. 80 Automatic Pipe Cutter will do the work quicker, easier and always leave a straight, square-end cut without burr.

"TOLEDO" Automatics No. 40, capacity 2" to 4", No. 80, capacity 4½" to 8", are the most perfect large pipe cutters on the market today, hand operated or driven by "TOLEDO" Power Drive. A post card brings further information.

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"TOLEDO"

NO FINER PIPE TOOLS ARE MADE THAN GENUINE "TOLEDOS"

UNDERWRITERS
of
NATURAL GAS
SECURITIES

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Inc.

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MILLED THE LAYNE GROOVE

An Invention That Electrified The Oil Industry

With the omnipotence of the lightning, the introduction of *Layne's Milled Groove* screen electrified the oil industry! It shatters anything ever heard of by way of increased production!

Imagine, for a moment, the value and ability of a simple design to produce from *33-1/3% to 100%* more oil per day out of any old well. That is why *Milled Groove* amazed the pioneer drillers. That is why *Milled Groove* is being installed by companies who refuse to plug along in the same old rut, but steadily forge ahead, keeping abreast of the times.

Yet, there is not any chance in installing *Milled Groove*. This screen is built of the finest materials obtainable. It is built by expert workmen who have spent a life time manufacturing screens. It is the culmination of *Layne's* close contact of oil fields and Leadership in manufacturing screens for more than a quarter century. *Layne* is the symbol of dependability and increased production.

Install now instead of later!

Write, wire or phone for quick service or any further information.

The Layne & Bowler Co.

Houston THE LAYNE Texas

Increases Production

The Layne New York Co. 30 Church St., New York
The Layne & Bowler Corp. Los Angeles, Cal.
Vickers, Limited London, England

LEADERSHIP IN SCREEN MANUFACTURE
FOR MORE THAN A QUARTER CENTURY

WILDCAT OPERATIONS IN OKLAHOMA

(Descriptions are East and North unless marked otherwise)

(Continued from Page 50)

GRADY COUNTY

J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w ..Spudded and shut down.
J. M. Henry and others' No. 1 Abraham, SE cor. NW Sec. 4-5-8w .....Rig.

GRANT COUNTY

Baucher et al's No. 1 Deadman, SW SE Sec. 12-28-4w ...Location.
Cowden and others' No. 2 Vollmer, CEL NE SW Sec. 22-25-4w .....Shut down 5,640 ft.
Lario-Lathrop's No. 1 Cornell, NW cor. NW Sec. 24-28-3w .....Drlg. 4,680 ft.

GARVIN COUNTY

Gardner Pet. Co.'s No. 1 Halverson, SW cor. NE Sec. 8-4-2 .....Rig on ground.
Gilcrease Oil Co.'s No. 1 Kelly, SE cor. NW NE Sec. 36-3-3w .....Drlg. 4,528 ft.

GREER COUNTY

Helmerick & Payne's No. 1 Henck, NW cor. Sec. 23-6-24w. Rig on ground.
I. T. I. O. and others' No. 1 fee, C SW NE Sec. 17-6-24w .....Granite; shut down 1,705 ft.
S. M. Stauffer's No. 1 Castleman, SW NE Sec. 8-4-26w ..Spudding.

HARMON COUNTY

I. T. I. O. Co.'s No. 1 fee, C SW SE Sec. 17-5-24w .....Rig.

HASKELL COUNTY

Holden's No. 1 Phillip, SE cor. Sec. 5-9-18e .....Drlg. 300 ft.
Marion Oil's No. 1 Sanders, NW NE SW Sec. 10-9-18e..Shut down 2,387 ft.
Sanboise Gas' No. 1 Unknown, SW NW SE Sec. 32-9-21e..Shut down 2,100 ft.

HUGHES COUNTY

Whitney et al's No. 1 Moore, SE SW Sec. 17-5-9 .....Underreaming 6-in. csg. 3,910 ft.
McGee Co.'s No. 1 fee, SE cor. Sec. 25-8-11e .....Drlg. 2,250 ft.
The Texas Company's No. 1 Bryan, SE NE SW Sec. 9-6-8e .....Drlg. 3,274 ft.

JACKSON COUNTY

Altus Oil Co.'s No. 1 Northington, NE cor. NE Sec. 4-1-20w .....Shut down 2,020 ft.

KINGFISHER COUNTY

Galt Brown's No. 1 Wolf, NW SE Sec. 6-16-7w .....Drlg. 4,706 ft.
McKenna & Crawford's No. 1 Sturgeon, NE cor. SW Sec. 27-16-6w .....Shut down 4,895 ft.

KIOWA COUNTY

Hyde et al's No. 1 Jones, SE cor. Sec. 23-3-18w-50 .....Shut down 50 ft.
S. H. Christian's No. 1 Stone, SE cor. Sec. 18-7-18w ....Rig on ground.
Merrick Oil Co.'s No. 1 Kelly, NW cor. SE Sec. 20-7-17w..Shut down 1,035 ft.
McWharter and others' No. 1 Sherwood, CWL NW NE Sec. 2-5-17w .....Shut down 680 ft.

LATTIMER COUNTY

Limestone O. & G. Co.'s No. 1 Shaw, NW cor. NE NW Sec. 23-5-18e .....Rig on ground.
Limestone Oil & Gas Co.'s No. 1 McMurray, SW cor. SW Sec. 15-5-18 .....Drlg. 3,620 ft.

LINCOLN COUNTY

Phillips Pet. Co.'s No. 1 Stephens, SE cor. NW Sec. 29-12-3 .....Rig.
Morgan & Flynn's No. 1 Finlay, SW cor. SW Sec. 19-16-6 .....Drlg. 1,828 ft.

LOGAN COUNTY

Haley & Smith's No. 1 Guier, SE cor. SW Sec. 33-18-3w..Cleaning out 5-in. csg. 3,970 ft.

McINTOSH COUNTY

Spring Valley Oil Co.'s No. 1 Carr, SE cor. NE NW Sec. 16-10-13e .....Shut down 250 ft.
Patterson and others' No. 1 Smith, SW cor. NW SE Sec. 32-9-16 .....Drlg. 5,532 ft.
Wolfe and others' No. 1 Unknown, NW cor. SE Sec. 15-12-18 .....Rig on ground.

MAJOR COUNTY

Randau & Mooney's No. 1 Parker, SE cor. NE NW Sec. 4-23-16w .....Show oil 1,235-40 ft.; shut down.
Earl and others' No. 1 Turner, C NE NE Sec. 23-20-14w..Rig.
Wilson and others' No. 1 Unknown, NE cor. NE Sec. 4-23-16w .....Shut down 510 ft.

MUSKOGEE COUNTY

Bradley's No. 1 Anderson, NW NW SW Sec. 26-15-19e ..Machine.
Cooper-Badget's No. 1 Young, NW NE NE Sec. 7-12-20e..Shut down 50 ft.
Tulkogee Oil Co.'s No. 1 Thompson, NW NE Sec. 31-15-20e .....Machine.
Slusher's No. 1 Barnes, NE cor. Sec. 22-13-19e .....Machine.
J. L. Slusher's No. 1 Nave, NE cor. SW NW Sec. 20-15-20 .....Shut down 775 ft.

NOBLE COUNTY

Gypsy Oil Co.'s No. 1 Bailey, C NE NE Sec. 24-22-1e ....Rig.
Magnolia Petroleum's No. 1 King, C SE SW Sec. 26-20-1w. Rig.

OKFUSKEE COUNTY

Superior and others' No. 1 Carolina, SE cor. Sec. 6-11-7e .....Location.
Prairie O. & G. Co.'s No. 1 Palmer, NW cor. NW NE Sec. 2-11-9 .....Water 4,022 ft.; 24 ft. water; 4,036 ft. abandoned.

OKLAHOMA COUNTY

Mid-Kansas' No. 1 Trosper, NE NW Sec. 19-12-1w .....Drlg. 4,462 ft.
Hall & Briscoe's No. 1 Holmes, NE cor. SW SE Sec. 10-11-3w .....Shut down 4,750 ft.

PITTSBURG COUNTY

Kerr & Koy's No. 1 Hall, C NW NW Sec. 32-4-12 .....Shut down 1,800 ft.

POTTAWATOMIE COUNTY

Sinclair and Mid-Continent's No. 1 Cumings, SE NE SE Sec. 6-7-5 .....Location.
Shaffer and Margay's No. 1 Murphy NW NE Sec. 11-6-3 .....Location.
Cal-Cul Oil Co.'s No. 1 McKnight, NW cor. NE NW Sec. 9-8-3 .....Location.

ROGER MILLS COUNTY

Bucy & Stone's No. 1 William, C SW Sec. 23-12-24w .....Location.
L. C. Hivick's No. 1 Davis, C NW NE Sec. 4-11-26w ....Shut down 725 ft.

SEMINOLE COUNTY

Indian Territory Illuminating Oil Co.'s No. 1 Factor, SW NE SE Sec. 3-5-7e .....Drlg. 3,935 ft.
Continental Oil Co.'s No. 1 Proctor, SE cor. NE NE Sec. 5-8-8e .....Underreaming 6-in. csg 3,525 ft.
McCulloch Oil Co.'s No. 1 McGilbray, SW cor. SW NE Sec. 4-8-8 .....Water 4,503-15 ft.; hole full water; abandoned.
McCulloch Oil Co.'s No. 1 Powell, NW cor. NW Sec. 11-6-5 .....Drlg. 4,335 ft.
Magnolia Pet. Co.'s No. 1 Harjo, NE cor. SE Sec. 34-6-7..Drlg. 4,679 ft.
Prairie O. & G. Co. and others' No. 1 Davis, NE cor. NE Sec. 26-6-6 .....Abandoned 4,848 ft.

SEQUOYAH COUNTY

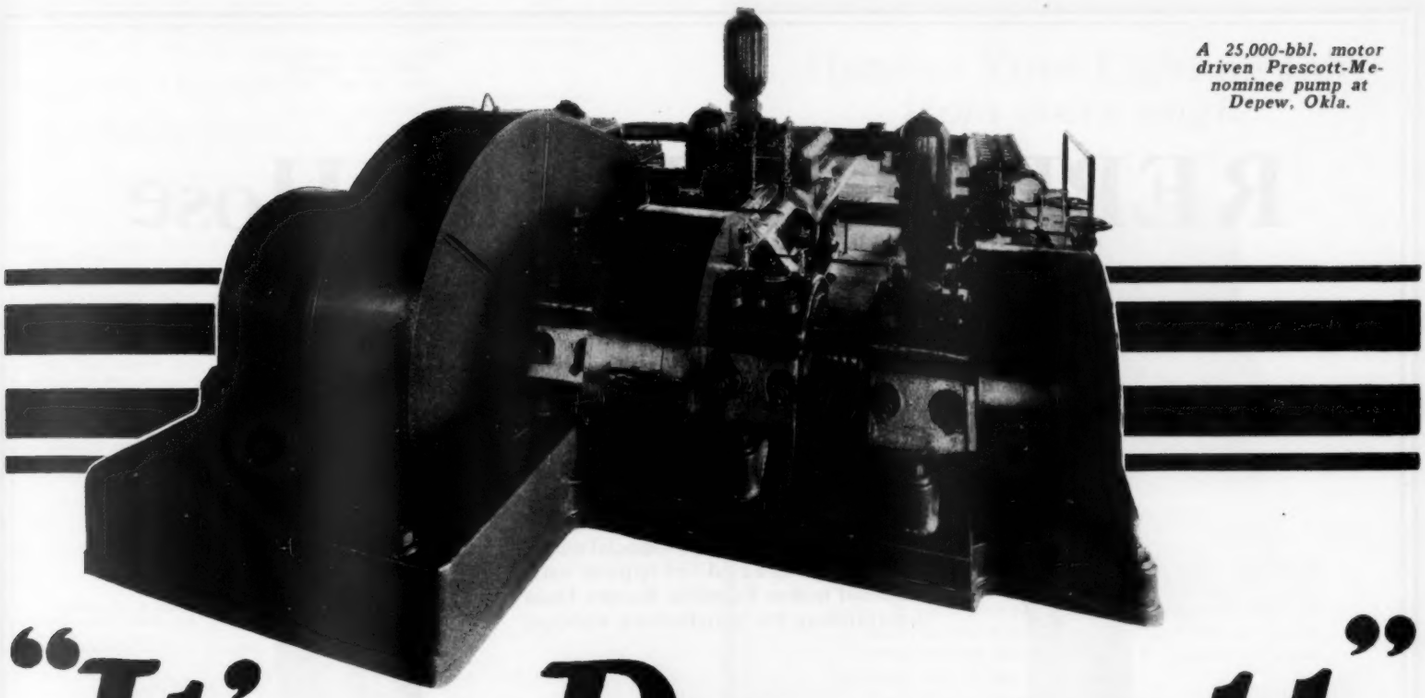
Hunt and others' No. 1 Unknown, SE cor. NW SW Sec. 12-12-23 .....Shut down 1,105 ft.
Buffington and others' No. 1 Melcher, C SW NW Sec. 31-12-24 .....Shut down 3,000 ft.

WOODS COUNTY

E. K. Miller's No. 1 Copenhavers, NW cor. NW Sec. 18-24-13w .....Rigged up and shut down.
Gypsy-Prairie and others' No. 1 Thompson, SE cor. SW Sec. 10-25-15w .....Drlg. 5,373 ft.
Sinclair Oil & Gas Co.'s No. 1 Steward, C SW SW Sec. 33-27-16w .....Drlg. 3,277 ft.

WOODWARD COUNTY

Farrond et al's No. 1 Unknown, SE cor. SW SE Sec. 22-23-17w .....Shut down 1,387 ft.
Prairie Oil & Gas Co. and others' No. 1 James, NE cor. NW Sec. 23-23-17w .....Drlg. 4,208 ft.
Billy's Oil Co.'s No. 1 Watt, C SE Sec. 9-23-20w .....Shut down 3,705 ft.



A 25,000-bbl. motor driven Prescott-Menominee pump at Depew, Okla.

"It's a Prescott"

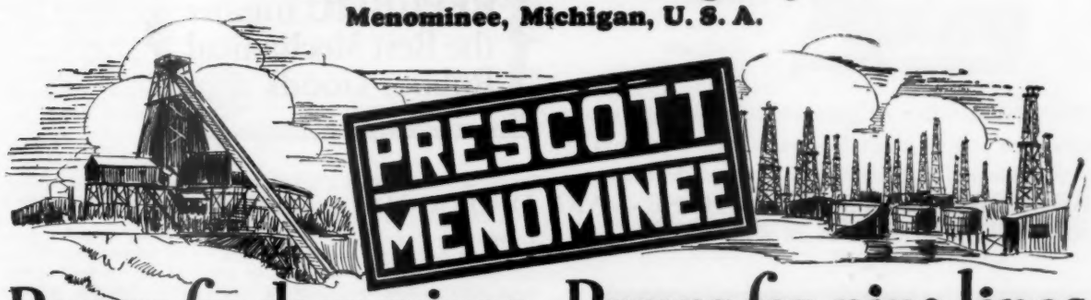
what more could any one want!

PRESCOTT pipe line pumps are built to give continuous 24-hour service 365 days a year, and to do the work most economically. It is a well known fact that for pipe line service properly designed motor driven plunger type pumps give the highest efficiency over the widest range of operation. Prescott pumps can be depended on to maintain an overall efficiency of from 80 to 86% day in and day out.

Not only the tremendous saving in power, but the ruggedness and reliability of Prescott-Menominee Oil Field Pumps have made them the popular choice of men who *know* good pumps.

Full information and data on request.

The Prescott Company
Menominee, Michigan, U. S. A.



Pumps for deep mines ~ Pumps for pipe lines

O&GJ 6-20 Gray

REPUBLIC Rotary Hose

Note this picture closely–special wire–specially spaced–clipped and soldered makes Republic Rotary Hose outstanding for satisfactory service.

WHEN the need for any rubber product next rises, remember that service-results have proven that Republic means the best mechanical rubber. Remember, too, that added quality and better prices are made possible because Republic uses the most direct and economical merchandising connection between manufacturer and consumer—the Industrial Supply Distributor. He functions as a marketing specialist for us; as a warehouse, buyer and economic advisor to you. Let us help you get in touch with our nearest distributor.

THE REPUBLIC RUBBER CO.
Youngstown, Ohio

BELTING -:- PACKING -:- HOSE -:- MOLDED GOODS -:- LATHE CUT GOODS

Burgoyne Brothers' No. 1 Merkins, SW cor. SE NE Sec. 15-21-19w ..... Shut down 1,910 ft.
Wilson and others' No. 1 Unknown, NE cor. SW Sec. 4-23-16w ..... Shut down 510 ft.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Wapanucka Oil Co.'s No. 1 Banks, CWL SE SE Sec. 28-2s-9 ..... Shut down 1,530 ft.

BRYAN COUNTY

Wheeler & Wiley's No. 1 Pitts, NW cor. Sec. 36-6s-9e.. Drlg. 580 ft.
Yale Oil Syndicate's No. 1 Craige, C NW NE Sec. 36-9s-9e ..... Shut down 1,390 ft.

CARTER COUNTY

L. J. Woodruff's No. 1 Zellnear, NE cor. NW SE Sec. 34-4s-1 ..... Drlg. 520 ft.
Avon-Dickey's No. 1 Anderson, NE cor. SE NE SE Sec. 32-4s-2 ..... Shut down 420 ft.

CHOCTAW COUNTY

Choctaw Petroleum Co.'s No. 1 Wilson, SW cor. SW Sec. 15-6-9 ..... Shut down 1,346 ft.

COTTON COUNTY

Hedrick et al's No. 1 Bull, SW SE Sec. 3-1S-10w ..... Drlg. 1,574 ft.
Derden & Pruitt's No. 1 Musgrove, NW SE Sec. 21-2-11w ..... Abandoned 2,519 ft.
Birdwell et al's No. 1 Means, SE SW SW Sec. 24-1-11w.. Shut down 1,626 ft.
Kirbow and others' No. 1 Brown, NE SW Sec. 35-3-12w.. Drlg. 1,940 ft.
Pewlin Pet. Co.'s No. 1 King, SW SE Sec. 22-3-9w ..... Drlg. 2,690 ft.
Amerada Pet. Corp.'s No. 1 Dulaney, SE cor. NW NW Sec. 31-4-9w ..... Drlg. 2,365 ft.

JEFFERSON COUNTY

Danciger et al's No. 1 Dilley, SE NW (O.D.D.) Sec. 11-5-7w ..... Rig.
Wirt Franklin Pet.'s No. 1 Sanders, SE NW Sec. 10-4-8w. Drlg. 2,315 ft.
Alter and others' No. 1 Johnson, SW cor. NW Sec. 14-4-7. Spudded and shut down 350 ft.
Pierce & Brown's No. 1 School Land, SE NE NW Sec. 16-5-8w ..... Drlg. 2,720 ft.

JOHNSTON COUNTY

Smith & Knisely's No. 1 Lane, E half Sec. 29-1-7 ..... Fishing 2,090 ft.
Bush Creek Oil Co.'s No. 1 Kirby, SE cor. NE NW Sec. 9-4-7 ..... Shut down for casing 405 ft.

MURRAY COUNTY

Bison Oil Co.'s No. 1 Labor, NW cor. Sec. 17-1-2e ..... 500,000 ft. gas and show of oil 2,185-2,228 ft.; shut down 2,270 ft.

STEPHENS COUNTY

Leath et al's No. 1 Handley, SE SW Sec. 24-2-5w ..... Rig.
Wirt Franklin Pet.'s No. 1 Spain, SW SE NW Sec. 9-2-5w ..... Drlg. 2,216 ft.
G. W. Haines et al's No. 1 Woolsey, SE cor. SW NE Sec. 4-3S-6w ..... Location.
Ellis Drilling Co.'s No. 1 Yates, SW NE Sec. 4-3-7w .... Drlg. 1,836 ft.
Smythe and others' No. 1 Shaw, NE cor. NE Sec. 27-2-8w ..... Drlg. 1,300 ft.

TILLMAN COUNTY

Cochran & Ridgway's No. 1 Barnes, C NW NE ..... Cellar.
Burt Lambert and others' No. 1 Zivlig, C NW Sec. 25-1-18w ..... Drlg. 3,130 ft.
Landfair and others' No. 1 Smith, SE SW SE Sec. 6-2s-15w ..... Shut down 2,535 ft.
Allen & Treadwell's No. 1 Howell, NW cor. SE Sec. 13-1-17w ..... Shut down 820 ft.

OKLAHOMA PANHANDLE

Magnolia Pet. Co.'s No. 1 School, C SE NE Sec. 22-5-5.... Drlg. 3,980 ft.
Skaer's No. 1 Hitch, NW cor. Sec. 25-1-15e ..... Drlg. 250 ft.
Three Way Oil Co.'s No. 1 Cane, SW NW Sec. 11-1-18e.. Abandoned 3,504 ft.

NAVY INVESTIGATING ANTIFREEZE AND OILS

(Continued from Page 164)

ton No. 3L started to seize. All rings in left bank were stuck and were replaced by new ones. To remedy this trouble Gulf-Pride 120 viscosity oil was tried and after 33½ hours part throttle and 30½ hours full throttle operation, varying the outlet temperature of the coolant from 200 degrees to 360 degrees Fahrenheit all pistons were well oiled and the scuffing eliminated.

"A closed system without a radiator was given a short trial. Although only a short full throttle run was made it was shown that a system of this type has possibilities.

"Because of its ability to withstand the high cylinder temperatures, coupled with the fact that it caused no appreciable loss in power, 120 viscosity, paraffin base lubricating oil is considered to be preferable for high temperature cooling. A 200 viscosity oil was tried to determine its affect on operation, but due to the extremely heavy oil, a considerable loss in power resulted, and the oil was discarded in favor of the 120 viscosity oil.

"When operating at a 350 degree coolant outlet temperature, the small amount of radiation required if supplied by the addition of cooling fins to the cylinder blocks would reduce the amount of plumbing required. This also suggests that the difficulty encountered in air-cooling engines with cylinders-in-line would be overcome by using a cooling system of this type."

Important In Petroleum

The results of these tests are important not only to aviation but also to the automotive industry in general.

Certain problems that came up in the investigation are being actively investigated for the Bureau of Aeronautics at the League Island Navy Yard under the direction of Commander McCord and Lieut. Z. Soucek. Rigid specifications for the lubricating oils must be followed, otherwise scoring of the cylinders and frozen pistons will result. Various oil companies have offered their co-operation to the Navy, and this difficulty is about solved.

Another serious difficulty arose from the fact that gasolines suitable for use in a water-cooled engine detonated very badly when used with the new coolant. Various refiners of aircraft engine fuels are co-operating with the Navy on this point also, and new fuels are already being tested. Preliminary results are very satisfactory and indicate that not only can the high temperature cooling system be safely used, but that it may even be possible to increase the compression ratio of the engine, thus increasing the efficiency and decreasing the fuel consumption. Announcement of these results will be made at a later date.

WELL PRODUCES 115,160,000 BBLS.

The famous Potrero del Llano oil well of Mexican Eagle Oil Co., which has been flowing continuously since 1910, had produced up to May 1 last a total of 115,160,000 bbls. of oil, according to an official report of the Mexican Department of Industry, Commerce and Labor, Petroleum Bureau.

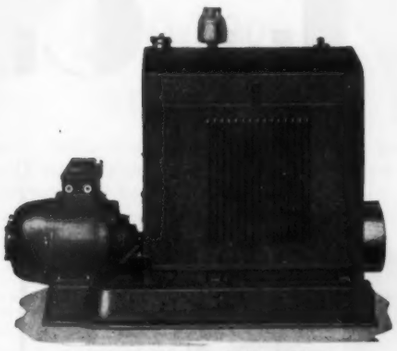
The well was first brought in with initial flow of close to 100,000 bbls. daily, got out of control, and flowed approximately 2,000,000 bbls. of oil, most of which was wasted, before it was brought under control.

Production of the well, which is situated in Tempache, Vera Cruz, has been gradually receding year by year, but it is currently producing in excess of 1,000 bbls. daily.

INVESTIGATE HUDSON'S BAY

CHATHAM, Ontario, June 15.—Dr. L. J. Weeks of the Geological Survey of Canada has left Ottawa on an all-summer trip to the west coast of Hudson's Bay, where he will investigate mineral possibilities. He will be accompanied by two university students, a cook and four Eskimos to be engaged in the north.

Handles Your Lighting Job
from every angle



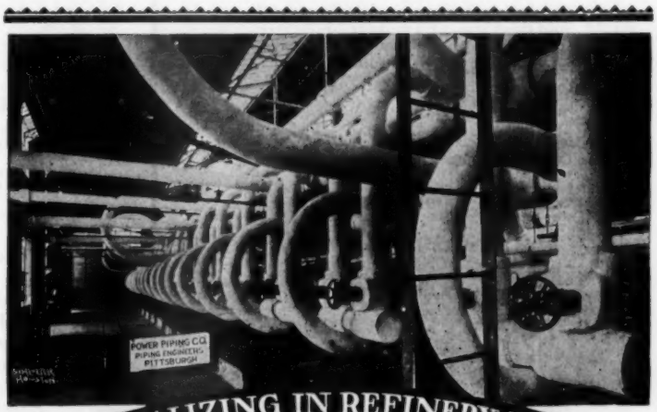
MOON Gas-Electric Lighting Plants 1 to 7½ KW

HERE is a real Oil Country lighting plant — extremely rugged in construction and containing plenty of surplus power. It has unusual flexibility for handling a hundred and one other jobs, due to the auxiliary pulley which can be used for driving blowers, pumps, etc. Can be equipped for either gasoline or natural gas.

Ask your Supply Store about them, or write us for Bulletin No. 15.

THE MOON MANUFACTURING COMPANY
128 No. Jefferson St., CHICAGO

MOON LIGHTING OUTFITS



SPECIALIZING IN REFINERY PIPING

Known Throughout the Field

Power Piping
FOR EVERY INDUSTRIAL NEED

Ask Our Engineers' Advice

Fabricating and erecting, in collaboration with your own engineers if necessary,—designs by our own organization or as specified by you,—anything in refinery or process piping.

POWER PIPING CO.
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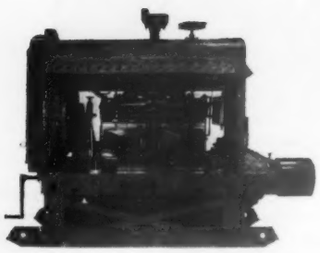
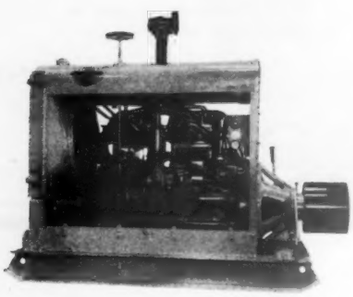
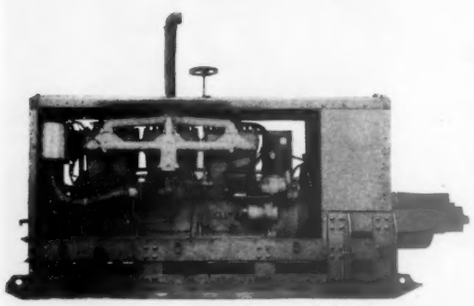
Do You Belong To The Climax Fraternity?



This Climax Engine drives spudders, gathering pumps, pumping gears, etc.



For fast and economical drilling, you'll find this Climax Paymaster Junior gives a "world of power" on portability rigs and the heavier spudder jobs.



Here is the engine that is whipping deep well drilling—it is the famous Climax Paymaster.

CLIMAX (Trade Mark Reg. U. S. Pat. Off.)

Here is a partial list of Climax owners each using from one to twenty Climax engines. If your name isn't there, drop us a line with a little information about your work—and then watch the Climax page in the July 25th issue.

OIL COMPANIES

Magnolia Petroleum Corp.
Phillips Petroleum Co.
Sun Oil Company
Mid-Kansas Oil & Gas Co.
The Texas Company
Marland Oil Company
Roxana Petroleum Corp.
Gulf Refining Company
White Eagle Oil & Refining Co.
Standard Oil Co. of California
Landreth Oil Corp.
Roser & Pendelton
Autrey Oil Co.
Herbert Oil Co.
California Petroleum Co.
Eastland Oil Co.
Grayburg Oil Company
Milham Oil Corp.
Continental Oil Co.
Texas-Pacific Coal & Oil Co.
Yount-Lee Oil Co.
Ryan Consolidated Corp.
Denver Produc. & Ref. Co.
Union Oil Co.
Connell Oil Co.
Skelly Oil Co.
McCulloch Oil Co.
Mulberry Oil Co.
Bu-Vi-Bar Oil Co.
Twin State Oil Co.
Taylor Link Oil Co.
Fuhrman Petroleum Corp.

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CLIMAX ENGINEERING COMPANY
76 WEST 18TH AVENUE CLINTON, IOWA

DISTRIBUTED BY

THE NATIONAL SUPPLY COMPANIES

NSCO TRADE MARK

12 MONTHS PRODUCTION CLIMBING TO NEW HIGH LEVELS EACH MONTH

By James McIntyre

The production of crude oil in the United States for the 12 months ending April 30 was 925,839,576 bbls. It is estimated that the 12 months' production at the close of May was 934,111,301 bbls. This quantity of crude produced in the 12 months ending May 31, 1928, was 898,199,869 bbls., indicating an increase in the past 12 months over the previous 12 months of 35,639,673 bbls. The total production of the year 1928 was 897,995,265 bbls., or 36,116,036 bbls. less than the past 12 months' crude output.

Had it not been for the curtailment of production and drilling in West Texas and California and to some degree in Oklahoma the production of the 12 months ending May 31 would have been much greater than the figures show.

Following was the production by pool in all the fields excepting the Eastern and California divisions, and a summary of the production by states and producing divisions:

SUMMARY BY PRODUCING DIVISIONS

Crude Oil Production in the United States in April, 1929

	Daily Av. bbls.	Month bbls.
Oklahoma	674,513	20,235,390
California	776,502	23,295,060
Texas	783,102	23,493,097
Kansas	103,566	3,106,980
Arkansas	72,956	2,188,680
Louisiana	56,750	1,702,497
Montana	9,961	298,830
Wyoming	49,681	1,490,430
Colorado	6,571	197,130
New Mexico	3,288	98,640
Eastern fields	117,200	3,516,000
Total April	2,654,090	79,622,734
Total March	2,650,623	82,169,369
Difference	3,467	2,546,635

MID-CONTINENT FIELDS

	Daily Av. bbls.	Month bbls.
Kansas	103,566	3,106,980
Oklahoma	674,513	20,235,390
North Texas	90,975	2,729,250
Central Texas	48,396	1,451,880
West Texas	353,325	10,599,784
Panhandle of Texas	61,166	1,834,980
East Central Texas	20,180	605,389
Arkansas	72,956	2,188,680
North Louisiana	35,640	1,069,200
Total April	1,460,717	43,821,533
Total March	1,468,964	45,537,898
Difference	8,247	1,716,365

GULF COAST AND SOUTHWEST TEXAS

Gulf Coast (Tex.-La.)	156,863	4,705,904
Southwest Texas	73,307	2,199,207
Total April	230,170	6,905,111
Total March	213,156	6,607,919
Difference	17,014	297,192

OKLAHOMA

Daily Average and Monthly Production in April

	Daily Av. bbls.	Month bbls.
Washington County	5,498	164,940
Nowata County	5,492	164,760
Rogers County	2,043	61,290
Osage and eastern Kay Counties—		
Burbank	21,142	634,260
Osage, outside Burbank	24,947	748,410
Total	46,089	1,382,670
Tulsa and Wagoner Counties—		
Bird Creek, Owasso, etc.	3,647	109,410
Red Fork, Sand Springs, Bruner	1,321	39,630
Bixby, Leonard	1,074	32,220
Broken Arrow, Coweta	1,018	30,540
Total	7,060	211,800
Okmulgee and Muskogee Counties—		
Okmulgee and Beggs	2,923	87,690
Mounds	1,863	55,890
Bald Hill and Haskell	2,847	85,410
Morris, Boynton, Cole	2,040	61,200
Total	9,673	290,190
Okmulgee, Okfuskee, Seminole and Pottawatomie Counties—		
Seminole City	33,176	995,280
Bowlegs	34,119	1,023,570
Little River	73,524	2,205,720
Earlsboro	59,817	1,794,510
Searight	10,038	301,140
Mission	28,496	854,880
Carr City	11,582	347,460
Maud	16,036	481,080
Total Seminole Field	266,788	8,003,640
Fearson-St. Louis	104,034	3,121,020
Henryetta, Deaner-Lyons, etc.	7,969	239,070
Wewoka	4,892	146,760
Cromwell	8,173	245,190
Papoose-Gilcrease	3,374	101,220
Jarvis-Holm	477	14,310
Weleetka	1,186	35,580
Wetumka	11	330
Yeager	291	8,730
Miscellaneous	8,843	265,290
Total	406,038	12,181,140
Creek and Tulsa Counties—		
Glen Pool, Jenks, Kiefer	7,153	214,590
Sapulpa and Fisher	667	20,010
Cushing-Shamrock	17,201	516,030
Bristow, Kellyville and Depew	13,609	408,270
Pickett Prairie and North Bristow	1,684	50,520
Eastern Bristow or Slick	7,685	230,550
Total	47,999	1,439,970
Pawnee County—		
Cleveland	2,536	76,080
Keystone	1,454	43,620
Jennings	3,491	104,730
Otoe	567	17,010
Ralston-Masham	157	4,710
Total	8,205	246,150
Payne County—		
Yale, Quay and Ingalls	4,354	130,620
North Cushing	1,155	34,650
South Cushing	285	8,550
Mehan-Ripley	983	29,490
Total	6,777	203,310
Oklahoma County—		
Trosper Park	3,387	101,610
Lincoln County—		
Stroud	1,055	31,650
Davenport	1,626	48,780
Kendrick	259	7,770
Total	2,940	88,200
Kay, Grant and Noble Counties—		
Blackwell	1,026	30,780
Vernon	1,182	35,460
Otstot	911	27,330
Deer Creek	818	24,540
Ponca City	633	18,990
Mervine	248	7,440
Braman	3,761	112,830
Hubbard	1,923	57,690
Thomas	973	29,190
Garrett	33	990
Tonkawa	10,112	303,360
Billings	178	5,340
Miscellaneous	249	7,470
Total	22,047	661,410
Garfield County—		
Garber	5,751	172,530
Logan County—		
Lovell	1,083	32,490
Marshall	11,202	336,060
Total	12,285	368,550
Carter County—		
Healdton	10,091	302,730
Hewitt	8,342	250,260
Graham	3,682	110,460
Brock	678	20,340
Fox	2,319	69,570
Sholom Alechem	13,408	402,240
Total	38,520	1,155,600
Stephens and Cotton Counties—		
Comanche	529	15,870
Duncan	4,772	143,160
Loco-Milroy	1,486	44,580
Kilgore	357	10,710
Walters	1,041	31,230
Total	8,185	245,550
Jefferson County—		
Hambro, etc.	2,551	76,530
Caddo County—		
Cement	1,420	42,600
Garvin County—		
Robberson	2,073	62,190
Grady County—		
Knox	4,191	125,730
Pontotoc County—		
Allen	26,065	781,950
Beckham County—		
Sayre	38	1,140
Marshall County—		
Madill	186	5,580
Total April	674,513	20,235,390
Total March	672,202	20,838,262
Difference	2,311	602,972

(Continued on Next Page)

Many a plant superintendent or engineer has seen the time when good packing in the right place would have been easily worth $1,000.00 an hour to his firm.

All agree that an inferior packing on any job is usually very expensive. The cost of Durametallic is so insignificant compared to the insurance it affords against shut-down losses that there is no wisdom in using anything inferior to Durametallic.

There is a grade and type of Durametallic made for every packing job—for every type of fluid from caustic soda to sulphuric acid—for every temperature from refrigeration ammonia to hot oil.

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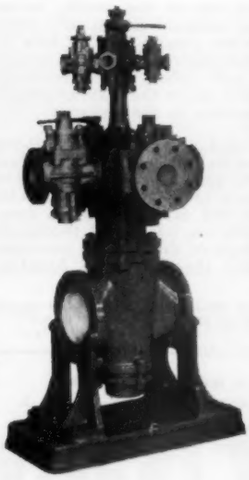
1000 Lbs. Will Not Stick A Northern Double-Packed Valve



In the accompanying illustration, 1000 lbs. are resting on the plug of the lower valve—yet the proper adjustment of the packing glands allows this exhibit to turn easily without the slightest trace of sticking.

There is a Northern Valve for every type of service. Handling gases, air, vacuums, high temperature, viscous and corrosive liquids are not new or untried jobs for Northerns.

Furnished in acid-resisting bronze, chrome steel, aluminum or other special materials suited for the required service. Write for detailed information.

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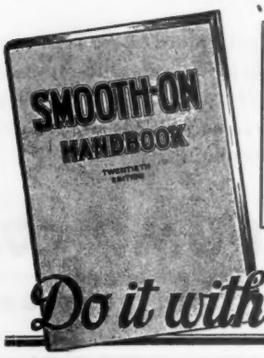

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KANSAS
Daily Average and Monthly Production in April

	Daily Av. bbls.	Month bbls.
Marion County—		
Florence-Urschell	408	12,240
Peabody	1,267	38,010
Covert-Sellers	520	15,600
Lost Springs	363	10,890
Total	2,558	76,740
Butler County—		
Elbing	1,505	45,150
Potwin	390	11,700
Cameron-Robinson	498	14,940
Wilson-Dunkle	1,407	42,210
Towanda	2,041	61,230
Fox-Bush	960	28,800
Nuttle-Koogler	1,647	49,410
Eldorado	7,219	216,570
Smock	164	4,920
Leon-Weaver	5,641	169,230
North Augusta	770	23,100
South Augusta	1,320	39,600
Sluss	264	7,920
Douglass	117	3,510
Keighly	711	21,330
Benton	19	570
Blankenship	733	21,990
Total	25,406	762,180
Greenwood and Woodson Counties—		
Sallyards	1,161	34,830
Teter-Pixley-Scott	5,334	160,020
Virgil	5,239	157,170
Thrall-Burkett	1,491	44,730
Seeley	6,244	187,320
Polhamus	894	26,820
Miscellaneous	1,076	32,280
Total	21,439	643,170
Cowley County—		
Rainbow Bend	1,295	38,850
Slick	597	17,910
Graham	271	8,130
Rock	151	4,530
Clark	143	4,290
Eastman	394	11,820
Winfield-New Salem	1,323	39,690
Miscellaneous	726	21,780
Total	4,900	147,000
Other counties—		
Sumner	12,102	363,060
Rooks	16	480
Rice	964	28,920
Russell	3,403	102,090
Reno	21	630
Sedgwick	21,040	631,200
McPherson	237	7,110
Harvey	20	600
Coffey	241	7,230
Chautauqua	2,215	66,450
Elk	2,010	60,300
Wilson	181	5,430
Montgomery	1,233	36,990
Allen	471	14,130
Neosho	462	13,860
Lyon	850	25,500
Miami	1,014	30,420
Franklin	377	11,310
Douglas	20	600
Bourbon	9	270
Linn	.....	.....
Anderson	1,427	42,810
Labette	20	600
Chase	18	540
Woodson	912	27,360
Total April	103,566	3,106,980
Total March	95,196	2,951,076
Difference	8,370	155,904

NORTH TEXAS
Daily Average and Monthly Production in April

	Daily av. bbls.	Month bbls.
Burkburnett	10,418	312,540
Electra	13,636	409,080
Iowa Park-K.M.A.	3,075	92,250
Archer County	16,675	500,250
Clay County	436	13,080
Wilbarger	27,089	812,670
Montague County	6,994	209,820
Young County	6,713	201,390
Baylor County	76	2,280
Cook County	5,863	175,890
Total April	90,975	2,729,250
Total March	89,055	2,760,705
Difference	1,920	31,455

EAST CENTRAL TEXAS
Daily Average and Monthly Production in April

	Daily Av. bbls.	Month bbls.
Boggy Creek	3,197	95,896
Cedar Creek	124	3,720
Currie	440	13,220
Mexia	5,472	164,154
Minerva	686	20,576
Nigger Creek	336	10,075
Powell	8,284	248,527
Richland	385	11,545
Thrall	35	1,046
Wortham	1,221	36,630
Total April	20,180	605,389
Total March	21,502	666,569
Difference	1,322	61,180

CENTRAL TEXAS
Daily Average and Monthly Production in April

	Daily Av. bbls.	Month bbls.
Coleman	3,711	111,330
Comanche	211	6,330
Stephens	6,434	193,020
Eastland	5,905	177,150
Brown	7,896	236,880
Callahan	3,908	117,240
Runnels	52	1,560
Throckmorton	744	22,320
Jack	1,889	56,670
Palo Pinto	410	12,300
Shackelford	12,804	384,120
Erath	248	7,440
Jones	4,184	125,520
Total April	48,396	1,451,880
Total March	48,879	1,515,249
Difference	483	63,369

WEST TEXAS
Daily Average and Monthly Production in April

	Daily av. bbls.	Month bbls.
Field and county—		
Big Lake, Regan	18,498	554,947
Settles, Glasscock and Chalk, Howard	42,829	1,284,857
Church & Fields, Crane	26,824	804,729
Connell, Ector	.....	.....
Harding, Howard	12	350
Hendricks, Winkler	144,799	4,343,975
Ira, Scurry	22	673
McCamey-Taylor, Upton	10,298	308,934
McElroy, Crane	12,601	378,037
Powell, Crockett	2,155	64,645
Stephens, Fisher	949	28,479
Skelly, Reagan*	.....	.....
Waddell, Crane	33	1,004
Westbrook and Iatan, Mitchell	2,600	78,000
Wheat, Loving	616	18,484
Yates, Pecos	90,857	2,725,706
Hazlett, Ward	232	6,964
Total April	353,325	10,599,784
Total March	374,487	11,609,104
Difference	21,162	1,009,320

*Included in Big Lake.

TEXAS PANHANDLE
Daily Average and Monthly Production in April

	Daily Av. bbls.	Month bbls.
County—		
Hutchinson	25,765	772,950
Carson	6,091	182,730
Gray	26,843	805,290
Moore	1,738	52,140
Potter	12	360
Wheeler	717	21,510
Total April	61,166	1,834,980
Total March	59,523	1,845,213
Difference	1,643	10,233

GULF COAST
Daily Average and Monthly Production in April
Texas

	Daily av. bbls.	Month bbls.
Allen Dome	8	238
Barbers Hill	9,887	296,597
Batson	1,488	44,634
Big Creek	2,885	86,547
Blue Ridge	3,957	118,714
Brenham	150	4,500
Boling	1,948	58,439
Clay Creek	3,644	109,324
Damon Mound	664	19,910
DeWalt	11,548	346,454
Fannette	683	20,475
Goose Creek	6,488	194,637
High Island	1,500	45,020
Hull	9,670	290,106
Humble	7,106	213,192
Jasper	25	740
Markham	1,152	34,574
Nash	628	18,830
North Dayton	448	13,430
Orange	2,888	86,634
Orchard	390	11,718
Pierce Junction	17,635	529,063
Raccoon Bend	2,480	74,409
Saratoga	937	28,109
Sour Lake	2,712	81,360
So. Liberty-So. Dayton	5,669	167,076
Spindletop	32,599	977,957
West Columbia	6,664	199,919
Total	135,753	4,072,607

SOUTH LOUISIANA
Daily Average and Monthly Production in April

	Daily av. bbls.	Month bbls.
Anse La Butte	46	1,370
Bayou Bouillon	263	7,893
Edgerly	825	24,742
Jennings	872	26,170
Hackberry	7,026	210,786
Lockport	3,655	109,639
Sorrento	412	12,360
Starks	504	15,124
Sulphur	2,880	86,420
Sweet Lake	367	11,001
Vinton	4,225	126,742
Welsh	35	1,050
Total Louisiana	21,110	633,297
Total Gulf Coast, April	156,863	4,705,904
Total Gulf Coast March	147,950	4,686,507
Increase	8,913	119,397

SOUTHWEST TEXAS
Daily Average and Monthly Production in April

	Daily av. bbls.	Month bbls.
Dale	496	14,884
Branyon	26	774
Bruner	40,944	1,228,320
Gonzales	78	2,347
Kingsville	281	8,438
Larremore	167	5,008

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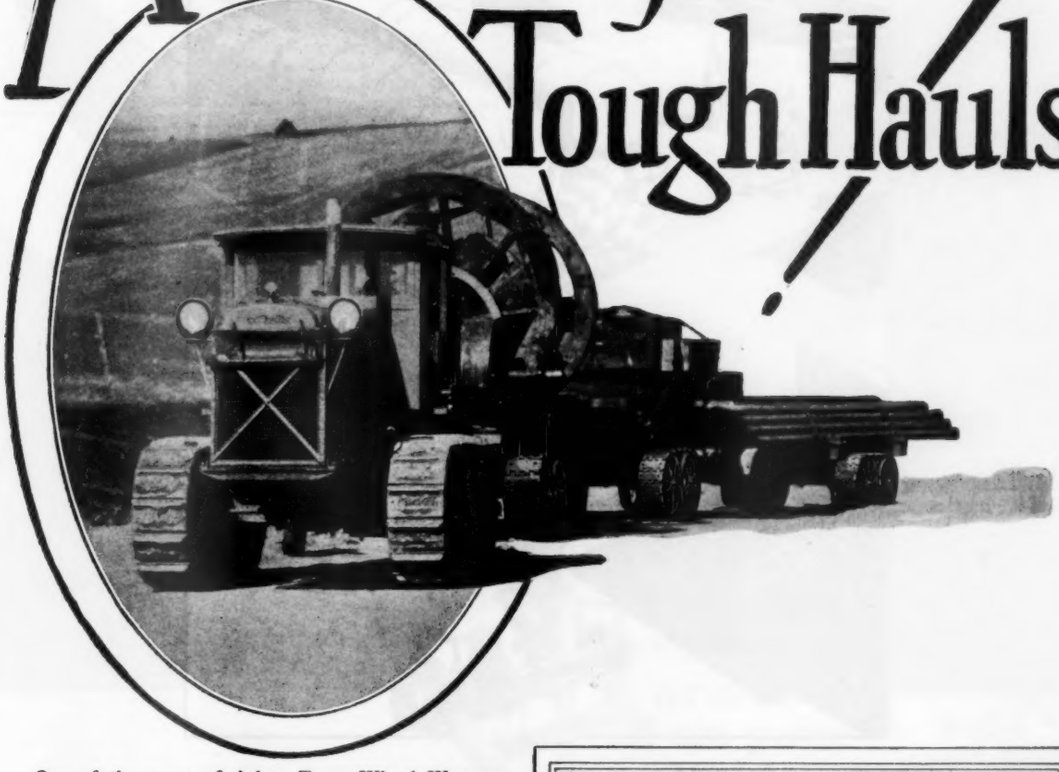
Atheys *are* Built *for* Tough Hauls!



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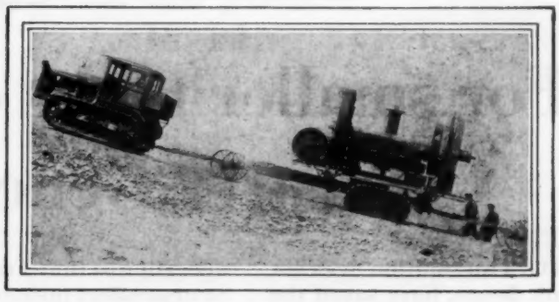
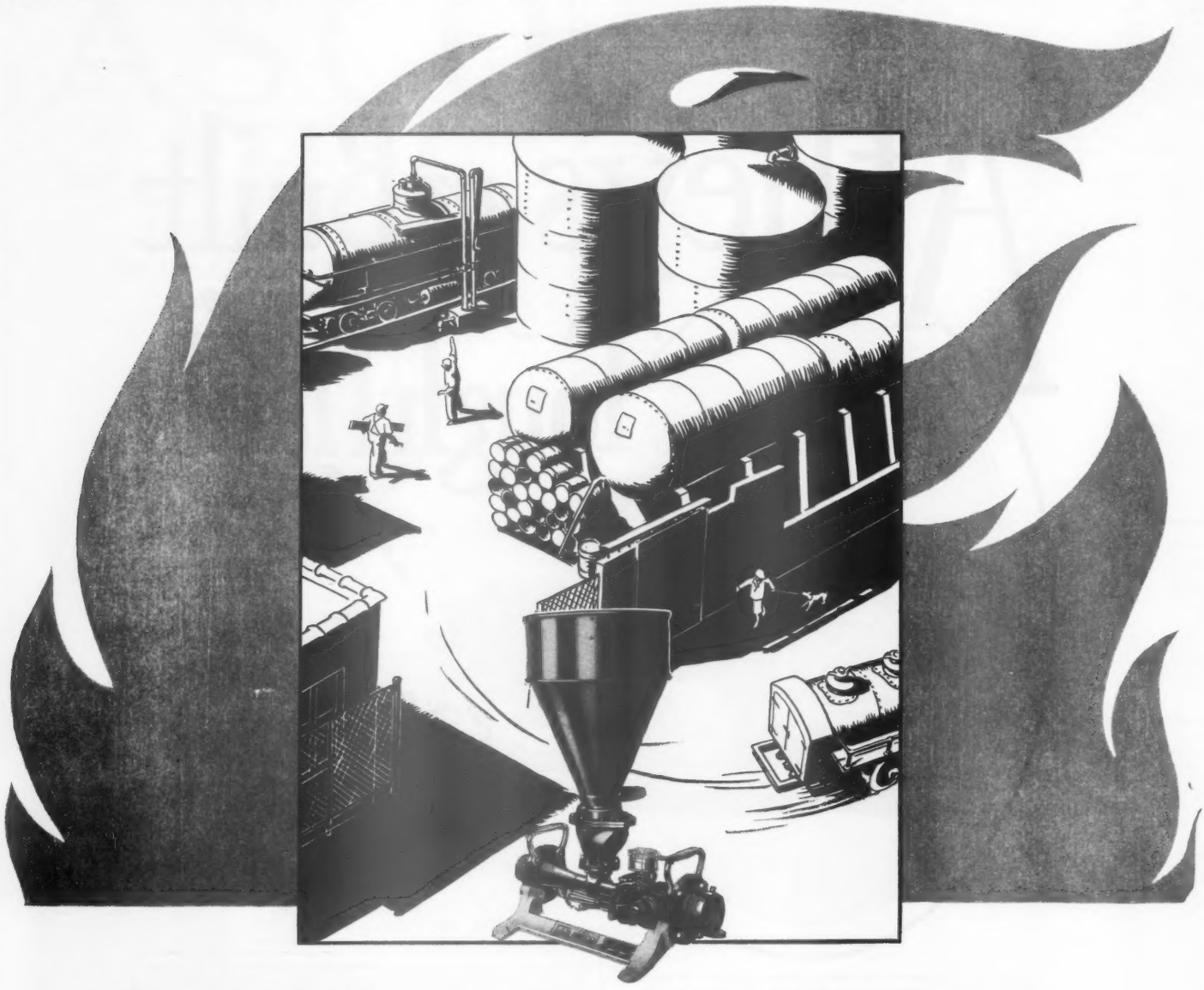


This scene shows the same train going up a sharp upgrade. That's when the light running qualities of Athey Wagons pay heavy dividends.

ATHEY TRUSS WHEEL WAGON
IT BRIDGES THE SOFT SPOTS

KILL FIRE WHILE IT IS YOUNG



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Just as FOAMITE Two-solution Systems, protecting tank farms, have saved the oil industry millions of dollars, FOAMITE Generator Systems are doing the job for which they are designed.

For medium size and small oil tanks —for single tanks, or tanks in groups of two or three—for any tank or tanks where a two-solution FOAMITE System may be too extensive for economical operation—the FOAMITE Generator System offers the next best form of protection.

FOAMITE Generator Systems smother fire with the same high grade of *Firefoam*. The foam blanket will not break down when it's genuine *Firefoam*—no matter how tough the fire or surrounding conditions may be. It puts the fire out and keeps it out.

If you would like information as to how they can protect your particular risks—call an American-LaFrance and Foamite representative. They are located at points convenient to all principal producing and refining centers. American-LaFrance and Foamite Corporation, Engineers and Manufacturers, Department F-29, Elmira, New York.

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A Complete Engineering Service

For Extinguishing Fires

Luling	11,920	357,590
Lytton Springs	1,055	31,648
McMullen	56	1,694
Medina	30	900
Mirando	12,319	369,555
Refugio	2,158	64,738
Somerset	1,833	54,985
Yoast	1,944	58,326
Total April	73,307	2,199,207
Total March	65,206	2,021,412
Increase	8,101	177,795

NORTH LOUISIANA

Daily Average and Monthly Production in April

	Daily av. bbls.	Month bbls.
Caddo, light	8,139	244,170
Caddo, heavy	3,228	96,840
Homer	4,007	120,210
Haynesville	5,395	161,850
DeSoto-Red River	3,944	118,320
Elm Grove	593	17,790
Bellevue	689	20,670
Cotton Valley	3,044	91,320
Urania	5,861	175,830
Pleasant Hill	487	14,610
Sarepta-Cartersville	253	7,590
Total April	35,640	1,069,200
Total March	35,806	1,109,986
Difference	166	40,786

ARKANSAS

Daily Average and Monthly Production in April

	Daily av. bbls.	Month bbls.
El Dorado	4,638	139,140
Smackover, light	6,222	186,660
Smackover, heavy	49,001	1,470,030
Stephens	1,022	30,660
Nevada	1,224	36,720
Lisbon	1,383	41,490
Bradley	100	280,980
Champagnolle	9,366	3,000
Total April	72,956	2,188,680
Total March	72,314	2,241,734
Difference	642	53,054

MONTANA

Daily Average and Monthly Production in April

	Daily av. bbls.	Month bbls.
Cat Creek	1,417	42,519
Kevin-Sunburst	5,597	167,910
Pondera	2,867	86,010
Lake Basin	80	2,409
Total April	9,961	298,830
Total March	9,483	293,973
Difference	478	4,857

COLORADO

Daily Average and Monthly Production in April

	Daily av. bbls.	Month bbls.
Craig	994	29,820
Fort Collins	2,534	76,020
Florence	1,096	32,880
Iles	1,249	37,470
Tow Creek	573	17,190
Miscellaneous	125	3,750
Total April	6,571	197,130
Total March	6,875	213,125
Difference	304	15,995

NEW MEXICO

Daily Average and Monthly Production in April

	Daily av. bbls.	Month bbls.
Artesia	910	27,300
Cap Rock (Maljamar)	220	6,600
Lea and Eddy	491	14,730
Hog Back	303	9,090
Rattlesnake	1,191	35,730
Table Mesa	173	5,190
Total April	3,288	98,640
Total March	2,891	89,621
Difference	397	9,019

WYOMING

Daily Average and Monthly Production in April

	Daily av. bbls.	Month bbls.
Big Muddy	2,345	70,350
Oregon Basin	2,461	73,830
Byron	32	960
Duton	47	1,410
Elk Basin	865	25,950
Ferris	20	600
Grass Creek	2,327	69,810
Frannie	10	390
Hamilton	715	21,450
LaBarge	1,771	53,130
Lance Creek	262	7,860
Lost Soldier	3,311	99,330
Osage	655	19,650
Poison Spider	698	20,940
Rock Creek	2,453	73,590
Rex Lake	117	3,510
Lander	512	15,360
Salt Creek	31,012	930,360
Simpson Ridge	53	1,590
Teapot Dome	15	450
Toptal April	49,681	1,490,430
Total March	51,584	1,599,104
Difference	1,902	108,674

Oklahoma and Texas Leading Producers in First Quarter of '29

The Prairie Oil & Gas Co. displaced the Magnolia Petroleum Co. as the leading producer in Oklahoma in the first quarter of 1929. The Prairie company produced 3,988,914.80 bbls., while the Magnolia which held the leadership in 1928 produced 3,873,039.61 bbls. As the Prairie Oil & Gas Co. purchased the T. B. Slick production after the close of the first quarter, and as the Slick production totaled 1,475,845.62 bbls. in the first quarter, some idea of the lead the Prairie has on other producing companies at this time may be had. The Gypsy Oil Co. was third and the Sinclair Oil & Gas Co. was fourth.

In Texas the Gulf Production Co. maintained its lead among the producing companies with 7,173,134.34 bbls. gross, as against 4,496,154.13 bbls. produced by its nearest competitor, the Humble Oil & Refining Co. The Southern Crude Oil Co. (Standard of Indiana) was third and The Texas Company fourth.

The remarkable staying qualities of Spindletop production is evidenced by the fact that the Yount Lee Oil Co. produced 3,076,092.53 bbls. most of which comes from the few acres the company has in the Spindletop Pool. The Gulf Production Co.'s large production comes in part from its Spindletop property.

The companies below listed represent the producers with an average of production of 1,000 bbls. per day in Oklahoma and Texas in the first quarter.

Production of Leading Companies in Oklahoma, First Quarter of 1929
(Net production)

Prairie Oil & Gas Co.	3,988,914.80
Magnolia Petroleum Co.	3,873,039.61
Gypsy Oil Co.	3,555,497.34
Sinclair Oil & Gas Co.	3,115,580.44
Pure Oil Co.	2,751,582.11
Carter Oil Co.	2,718,560.31
Independent Oil & Gas Co.	2,258,843.54
Indian Terr. Ill. Oil Co.	1,880,431.00
Shell Petroleum Corp.	1,563,972.82
T. B. Slick Interests	1,475,845.62
The Texas Company	1,320,324.32
Barnsdall Oil Corp.	1,287,275.94
Mid-Continent Petroleum Co.	1,275,960.31
Amerada Petroleum Corp.	870,993.00
Atlantic Oil Prod. Co.	385,694.57
Champlin Refining Co.	229,742.71
Comar Oil Co.	627,254.19
Continental Oil Co.	101,468.72
Darby Petroleum Corp.	141,019.72
Empire Oil & Refining Co.	318,834.65
Foster Petroleum Corp.	229,484.79
Wirt Franklin Petroleum Co.	182,387.70
Turman Oil Co.	147,824.65
Highway Oil Refg. Corp.	104,236.02
Homaokla Oil Co.	199,334.13
Humble Oil & Refg. Co.	229,828.64
Josey Oil Co.	160,057.52
Kewanee Oil & Gas Co.	306,729.68
Lewis Production Co.	119,056.73
Laurel Oil & Gas Co.	187,609.72
Louisiana Oil Refining Corp.	91,394.00
J. H. Markham, Jr.	93,105.90
Margay Oil Corp.	152,360.32
Marland Production Co.	414,172.93
Mid-Kansas O. & G. Co.	330,318.93
Minnehoma Oil & Gas Co.	93,305.96
Papoose Oil Co.	90,244.46
Producers & Refiners Corp.	278,684.12
Phillips Petroleum Co.	647,154.38
Reiter-Foster Oil Co.	104,438.04
Superior Oil Corp.	219,401.68
Silurian Oil Co.	106,403.55
Tom Slick, Inc.	860,871.38
Schermerhorn-Ardmore	102,842.55
Shaffer Oil & Refining Co.	380,365.48
Skelly Oil Co.	944,757.53
T. B. Slick	614,974.24
Tidal Osage Oil Co.	361,105.65
Twin State Oil Co.	576,092.78
Tidal Oil Co.	632,414.66
H. F. Wilcox Oil & Gas Co.	222,219.14
Westheimer & Daube	217,367.58
L. H. Wentz (Oil Division)	145,348.59
Wolverine Petroleum Corp.	170,393.47
Total	42,028,647.92

Leading Producers in Texas in the First Quarter of 1929
(Gross production)

Gulf Production Co.	7,173,134.34
Humble Oil & Refining Co.	4,496,154.13
Southern Crude Oil Pur. Co.	3,984,993.08
The Texas Company	3,606,194.59
Shell Petroleum Corp.	3,555,869.91
Yount Lee Oil Co.	3,076,092.53
Magnolia Petroleum Co.	2,726,878.64
Pure Oil Co.	2,220,558.10
Mid-Kansas Oil & Gas Co.	1,781,851.38
Transcontinental Oil Co.	1,735,374.96
Atlantic Oil Producing Co.	1,616,288.15
Prairie Oil & Gas Co.	1,454,272.28
Phillips Petroleum Co.	1,408,472.29
Marland Production Co.	1,352,906.70
California Co.	1,352,763.00
Sun Oil Co.	1,338,139.50
Skelly Oil Co.	1,265,559.48
Big Lake Oil Co.	1,189,013.42

(Continued on Next Page)

Why bother with Competitive Quotations when ODEE is always lower?

When you contemplate a new pipe line, keep your cost down by thinking of ODEE pipe. GREENSPON'S (pioneers of ODEE pipe for gas lines) have always kept their prices low; so low that you need not bother about securing other quotations.

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WHEN cleaning grease from salvaged parts, get rid of elbow grease, too! Salvage cleaning need not involve tedious, time-consuming scrubbing and scraping. Put this important operation on a modern efficient basis . . . let Oakite materials and methods do the work.

When Oakite materials are used, equipment is soaked clean. Valves and fittings, bits, fishing tools and other parts are simply lowered by the basketful into a tank and allowed to remain a short time. When removed, grease, oil and dirt are so thoroughly loosened that a rinse leaves surfaces clean to the metal.

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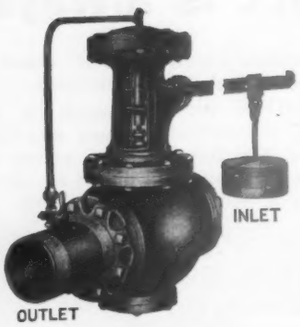

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The function of this regulator is to reduce the high pressure of the well, or line, to a point where it can be conveniently and safely handled by a low pressure regulator without stress or strain.

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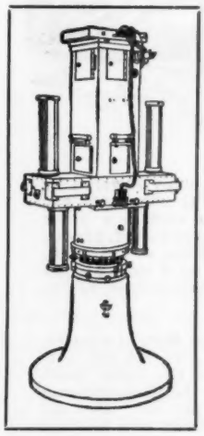

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Cranfill Brothers Oil Co.	179,148.90
Cosden & Co., Inc.	417,579.73
Continental Oil Co.	552,385.28
Dixie Oil Co., Inc.	90,786.08
Eastland Oil Co.	122,592.30
Empire Gas & Fuel Co.	287,045.24
Fain-McGaha Oil Corp.	529,205.43
Group No. 1 Oil Corp.	449,762.37
Humphreys Corp.	197,080.99
Independent Oil & Gas Co.	430,461.09
Kewanee Oil & Gas Co.	150,800.16
Louisiana Oil Refining Corp.	120,565.48
Moutray Oil Co.	97,307.21
Merrick & Bristow	180,537.59
Midwest Exploration Co	106,651.10
McMan Oil & Gas Co.	550,013.66
Murchison Oil Co.	274,287.54
Moody Corp.	824,743.53
Navarro Oil Co.	194,422.04
Oklahoma Pet. & Gasoline Co.	103,528.25
Owen-Sloan Oil Co.	140,729.26
Ohio-Texas Oil Co., Inc.	115,115.00
Petroleum Producers Co.	102,390.36
Panhandle Refining Co.	111,087.25
Ryan Consolidated Pet. Corp.	94,051.97
Rockwell, J. A., & Co.	237,568.09
Rycade Oil Corp.	205,943.62
Republic Production Co.	937,707.10
Rosser & Pendleton, Inc.	386,348.08
Rio Bravo Oil Co.	422,823.36
Schermerhorn Oil Co.	240,842.26
Snowden & McSweeney Co.	120,038.51
Staley, Wynne & Co.	157,298.86
South Texas Petroleum Co.	207,883.53
Simms Oil Co.	827,280.05
Sinclair Oil & Gas Co.	134,233.54
Shaw, T. G.	94,904.54
Sinclair Oil & Gas Co.	154,212.66
Smith, E. L., Oil Co., Inc.	191,463.22
Texon Oil & Land Co. of Texas	173,395.62
Texas Pacific Coal & Oil Co.	306,989.70
Tidal Oil Co.	230,615.38
Waggoner Refining Co., Inc.	485,127.70
Warner-Quinlan Co. of Texas	250,128.36
Cranfill & Reynolds	394,572.44
Grayburg Oil Co.	207,758.09
Total	59,427,483.54

RUMANIAN PRODUCTION AT NEW HIGH RECORD

By Charles E. Kern

Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., June 15.—A year of progress and improvement for the Rumanian oil industry in comparison with preceding years is reported during 1928, although conditions are said to be still far from satisfactory and the industry is confronted by numerous difficulties, principally financial and commercial, according to a report from Consul J. Rives Childs, Bucharest.

Total crude production amounted to 31,690,391 bbls. (2.4 per cent of the world production), compared with 27,263,300 bbls. in the preceding year, making 1928 a new record for Rumanian production. The percentage of increase, however, was not so high as for years preceding 1927.

There was a marked stagnation in drilling activities in 1928. The exact number of meters drilled is not yet known, but it is reported that the total did not exceed the 250,000 meters drilled in 1927. The terms of the Mining Law of 1924 are said to discourage drilling in unexplored fields, and as it does not require concessionaires to explore conceded lands Rumanian companies are generally reluctant to undertake drilling in new fields so long as the opportunity remains to exploit old ones.

As in previous years, 98 per cent of the crude output of Rumania was produced in 1928 by joint stock companies. Approximately 90 per cent was supplied by nine companies, representing largely foreign capital, European and American. This is a distinct change from the years immediately following the passage of the 1924 law, when its provisions in favor of Rumanian enterprises caused a rapid increase in their share of the total production of crude oil.

A similar tendency was evident in drilling activities. As late as 1927 the drilling of the Rumanian, or nationalized foreign, companies increased over preceding years owing to the exceptionally rich oil lands received as concessions.

Following the increase in crude production there was a corresponding augmentation in the output of the domestic refineries, which in 1928 treated 30,522,440 bbls. of crude compared with 26,257,620 bbls. treated in 1927. The Rumanian refineries have a total refining capacity of approximately 34,817,000 bbls. Increasing difficulties for refineries and other petroleum interests arose during 1928, it is said, as the result of the marked decline in fuel oil prices. As the majority of the domestic refineries are not equipped with cracking plants the supplies of fuel oil on the local market greatly exceed domestic needs, and the low export price in 1928 caused the refineries to operate practically at a loss, they reported. Several Rumanian refiners attempted to find the necessary capital to purchase cracking plants, but were impeded by the continued financial shortage prevailing in Rumania.

NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

TEXAS PANHANDLE

Carson County

Skelly Oil Co.'s No. 16 H. Schafer, 330 feet north and west of the southeast corner of Section 87, Block 4, I.&G.N. Survey.

Gray County

Gulf Production Co.'s No. 3 William Jackson, 276 feet south and 718 feet east of the northwest corner of Gulf Production Co.'s 160-acre lease out of Section 62, Block B-2, H.&G N. Survey. Same company's No. 4 William Jackson, 275 feet south and 1,404 feet east of the northwest corner of Gulf Production Co.'s 160-acre lease out of Section 62, Block B-2, H.&G.N. Survey. McMan Oil & Gas Co.'s No. 2 G. H. Saunders, 990 feet north and 330 feet east of the southwest corner of the east 80 acres of the west half of the east half of the J. G. Eustice Survey No. 1. The Texas Company's No. 12 G. H. Saunders, 330 feet north and 911 feet east of the NW cor., Section 2, Block 1, A.C.H.&B. Survey, and located in the J. G. Eustice Survey No. 1. Same company's No. 13 G. H. Saunders, 955 feet north and 911 feet east of the NW cor. Section 2, Block 1, A.C.H.&B. and located in the J. G. Eustice Survey No. 1. Champlin Refining Co.'s No. 2 D. J. McLaughlin, 330 feet north and west of the SE cor. NE, Section 33, Block B-2, H.&G.N. Survey. Humble Oil & Refining Co.'s No. 1 W. Jackson, 330 feet north and east of the southwest corner of the east 95.25 acres of Section 90, Block B-2, H.&G.N. Survey. Magnolia Petroleum Co.'s No. 5 J. Bowers, 327 feet south and 922 feet east of the NW cor. NW, Section 63, Block B-2, H.&G.N. Survey. McMan Oil & Gas Co.'s No. 1 W. Jackson, 330 feet north and west of the southeast corner of the west 95.25 acres of the east half of Section 90, Block B-2, H.&G.N. Survey. Sun Oil Co.'s No. 2 Purviance et al, 300 feet north and 267 feet west of the southeast corner of the west 80 acres of Section 61, Block B-2, H.&G.N. Survey. The Texas Company's No. 1 W. C. Archer, 300 feet north and east of the SW cor. S half SE, Section 174, Block 3, I.&G.N. Survey. Same company's No. 8 J. B. Bowers, 330 feet south and 1,635 feet west of the NE cor., Section 89, Block B-2, H.&G.N. Survey. Same company's No. 3 Purviance and others, 275 feet north and 1,736 feet east of the SW cor., Section 61, Block B-2, H.&G.N. Survey.

Hutchinson County

Huey and other's No. 3 H. E. Smith and others, 330 feet south and 600 feet east of the northwest corner of south 40 acres of the east 100 acres of SE, Section 12, Block Y. Phillips Petroleum Co.'s No. 4 Johnson Brothers-Ford, 993 feet north and 330 feet east of the southwest corner of the east 160 acres of Section 28, Block Y. Same company's No. 4 J. J. Perkins, 330 feet south and west of the NE cor., Section 2, Block 1, H.&G.N. Survey. Skelly Oil Co.'s No. 7 J. A. Whittenburg, 330 feet north and 1,570 feet east of the SW cor., Section 22, H. O. Jameson Survey, Block V. Same com-

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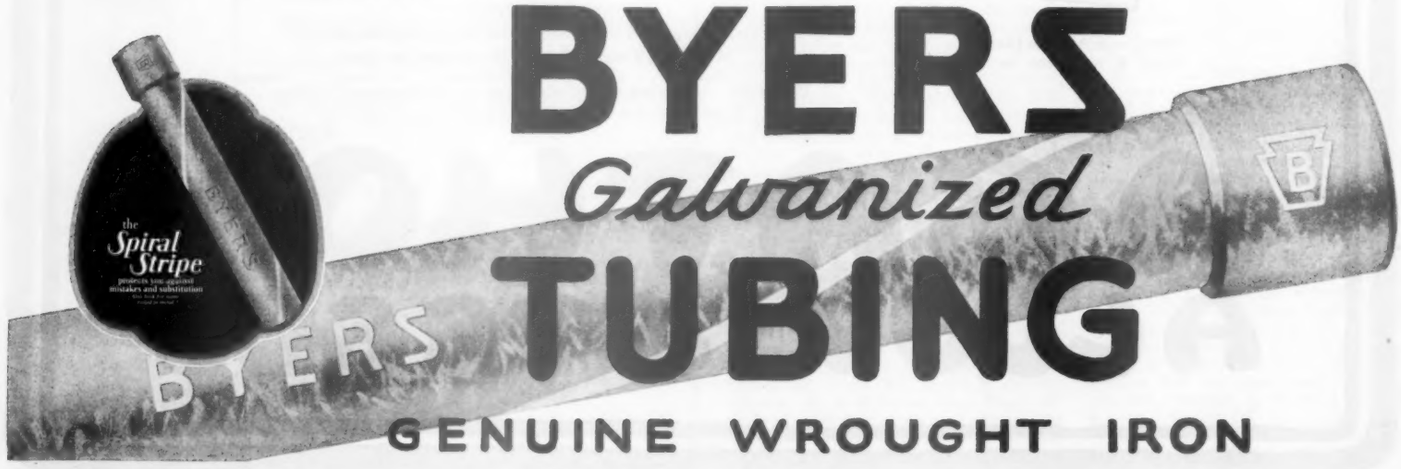

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pany's No. 8 J. A. Whittenburg, 330 feet north and 2,230 feet east of the SW cor., Section 22, H. O. Jameson Survey, Block V.

Wheeler County

Lone Star Gas Co.'s No. 2 R. W. Griswold, C NW SE, Section 1, Block 24, H.&G.N. Survey. Same company's No. 1 D. B. Lamb, C S half NE SW, Section 91, Block 17, H.&G.N. Survey. Same company's No. 2 C. A. Linkey, C NE NE, Section 129, Block 23, H&G.N. Same company's No. 1 J. W. Stauffer, C SW SW, Section 102, Block 23, H.&G.N. Survey. The Texas Company's No. 1 C. Hicks, 660 feet south and 870 feet west, NE cor. SW, Section 53, Block 17, H.&G.N. Survey.

NORTH CENTRAL AND WEST TEXAS

Archer County

Fain-McGaha Oil Corp.'s No. 2 W. H. Taylor-A, 150 feet south and 450 feet east of the NW cor. S half, Lot 11, Section 17, A.T.N.C.L. Survey. Humble Oil & Refining Co.'s No. 1 J. H. Turbeville-B, 150 feet north and 2,150 feet west of the southeast corner of the east 150 acres of Section 154, Robert Carson Survey A-80. J. H. Massie's No. 7 L. F. Wilson, 812 feet north and 475 feet west of the SE cor., Lot 4, Section 23, A.T.N. C.L. Survey. Perkins-Cullum and other's No. 1 W. L. Andrews, 1,210 feet south and 150 feet west of the NE cor., Section 143, Robert Carson Survey A-95. Shappel Oil Co.'s No. 6 J. D. Lyles, 450 feet north and 150 feet east of the SW cor. NW NE, Section 7, Hooper & Wade Survey A-234. T. P. Coleman's No. 1 James Longley, 150 feet south and west of the NE. cor. SE, Section 98, Jefferson County School Land, A-240. Gilliland-Rosser & Gwnn's No. 2 Roach & Junker, 750 feet south and 200 feet east of the northwest corner of the north 25 acres of the east 54.5 acres of Section 1,595, T.E.&L. Survey. Humble Oil & Refining Co.'s No. 3 A. M. Kunkel and others, 150 feet north and 450 feet west of the southeast corner of the north 40 acres of the east half of Section 3, B.B.B.&C. Survey A-51. Humble Oil & Refining Co. and Fain-McGaha Oil Corp.'s No. 8 W. J. Logan-B, 1,050 feet north and 150 feet west of the southeast corner of their 160-acre lease "B," out of the Allison Arms Survey A-5. A. W Johnston's No. 1 J. R. Garvey-G, 1,100 feet north and 600 feet west of the SE cor., Section 1,802, T.E.& L. Survey. E. B. Madden's No. 18 J. T. Richardson, 150 feet north and 1,350 feet east of the southwest corner of his 125-acre lease out of Section 1, South Anderson Ranch sub-division. W. E. Maxon, Jr.'s No 4 F. C. Green-B, 450 feet north and 2,225 feet east of the southwest corner of the Joseph Levins Survey A-259. Petroleum Products Co. and others' No. 3 A. M. Kunkel and others-B, 150 feet south and 450 feet west of the northeast corner of the south 40 acres of the north 80 acres of the east half of Section 3, B.B.B.&C. Survey A-51. Prairie Oil & Gas Co.'s No. 3 J. T. Richardson (Section 13), 150 feet north and 475 feet east of the SW cor, Section 13, Thomas McCoy Survey A-269.

W. H. Smith, Jr.'s No. 4 R. O. Prideaux, 150 feet north and 450 feet east of the southwest corner of the west 40 acres of the east 50 acres of the south 100 acres of Section 1,860, T.E.&L. Survey.

Brown County

E. P. Campbell and other's No. 2 A. A. Turner, 150 feet north and 500 feet west of SE cor., Section 61, H.T.&B. Survey. Van Bibber and other's No. 1 C. T. Evans, 150 feet north and east of the southwest corner of the C. S. Corbett Survey No. 16. Van Bibber and other's No. 1 S. O. Looper, 150 feet south and 750 feet west of the northeast corner of the S. O. Looper 106.5-acre tract out of the Jasper Woodward Survey No. 20.

Callahan County

H. H. Barnhart and other's No. 2 J. R. McFarlane, 1,320 feet south and 1,470 feet west of the northeast corner of the J. Youngblood Survey No. 248. E. P. Campbell and other's No. 1 R. Hennessy, 2,640 feet south and 1,900 feet east, NW. cor., Section 72, B.B.B.&C. Survey. E. P. Campbell and other's No. 1 W. E. Kennard, 1,800 feet south and 1,300 feet east of NW cor., Section 26, E.T.R.R. Survey.

Clay County

American Refining Co. Properties' No. 4 American Refining Co. Properties, 150 feet south and 1,400 feet west of the NE cor., Section 65, Bacons sub-division, Robert Crossman Survey A-84.

Coleman County

Eastland Oil Co. and other's No. 2 I. Keeney-A, 882 feet north and 250 feet east of the southwest corner of the north 94 acres of the west 194 acres of the I. Keeney 374.85-acre tract out of the R. Cochran Survey No. 269. Eastland Oil Co. and other's No. 3 I. Keeney-A, 250 feet north and 950 feet east of the southwest corner of the north 94 acres of the west 194 acres of the I. Keeney 374.85-acre tract out of the R. Cochran Survey No. 369. Midwest Exploration Co.'s No. 2 I. Keeney, 250 feet south and 750 feet east of the northwest corner of the south 100 acres of the west 194 acres of the I. Keeney 374.85-acre tract out of the R. Cochran Survey No. 269. Mitchell & Groves' No. 1 C. B. Jameson, 250 feet south and east of the northwest corner of the east 80 acres of the north 160 acres of the C. B. Jameson 320-acre tract out of the J. H. Woods Survey No. 483. Tidal Oil Co.'s No. 1 D. M. Flippen, 150 feet south and west of the northeast corner of the G. M. Deadrich Survey No. 84. Tower & McKanna's No. 1 J. J. Crowder, 150 feet south and west of the northeast corner of the east 40 acres of the north 100 acres of the J. J. Crowder 240-acre tract out of the J. H. Woods Survey No. 483. White Eagle Oil & Refining Co.'s No. 1 J. P. Morris, 150 feet south and west of the northeast corner of Lot 25, William Weber Survey No. 722. Smith & Shaffer's No. 3 S. M. Russell, 875 feet north and 600 feet east, SW cor., Section 10, North sub-division, M. Martinez Survey No. 751. E. T. Green & Midsun Oil Corp's No. 1 J. T. Johnson, 750 feet north and 150 feet west of the southeast corner of the Thomas Flynn Survey No. 245.

Cooke County

Benson Brothers' No. 1 John Haverkamp, 150 feet south and east of the northwest corner of the John Haverkamp 105-acre tract out of the H. N. Burdett Survey A-66. W. T. Daniel's No. 1 W. A. Harris, 150 feet south and west of the NE. cor. NE, J. Harris Survey A-502. Humble Oil & Refining Co.'s No. 1 Field & Bowers, 150 feet north and 1,005 feet east of the southwest corner of the Field & Bowers 80-acre tract out of the S.P. R.R. Survey No. 23, A-986.

Comanche County

Texas Pacific Coal & Oil Co.'s No. 1 L. C. Echols, 600 feet south and 1,200 feet east of the NW cor. SW, Section 21, Deaf & Dumb Asylum Land. Tex-Wa Oil Co.'s No. 1 W. C. Fisher, 450 feet south and 1,945 feet west of the most easterly northeast corner of the W. C. Fisher 136.5-acre tract out of the Enos Cooper Survey.

Crane County

Tidal Oil Co.'s No. 9 University Land-I, 771 feet north and 1,320 feet east, SW cor. SE, Section 47, Block 30, University Land.

Culberson County

Deep Rock Oil Co. and other's No. 2 Kloh & Rumsey, 380 feet south and 1,388 feet east, NW cor., Section 39, Block 59, Township 7, T.&P. Survey.

Eastland County

Gholson et al's No. 1 E. Mills, 150 feet south and east of the northwest corner of the E. Mills 146-acre tract out of the Fred Scranton Survey. Texas Pacific Coal & Oil Co.'s No. 5 R. W. & J. M. Higginbotham, 990 feet south and 2,610 feet west of the NE cor., Section 53, Block 4, H.&T.C. Survey.

Erath County

Lone Star Gas Co.'s No. 1 Floyd Thompson, 1,000 feet north and east of the southwest corner of the John A. Frey Survey No. 16.

Irion County

Crawford and other's No. 1 J. M. Nutt, 450 feet south and 150 feet east of the NW cor., Section 8, Gonzales County School Land. F. E. Webb and other's No. 2 J. M. Nutt, 200 feet south and 711

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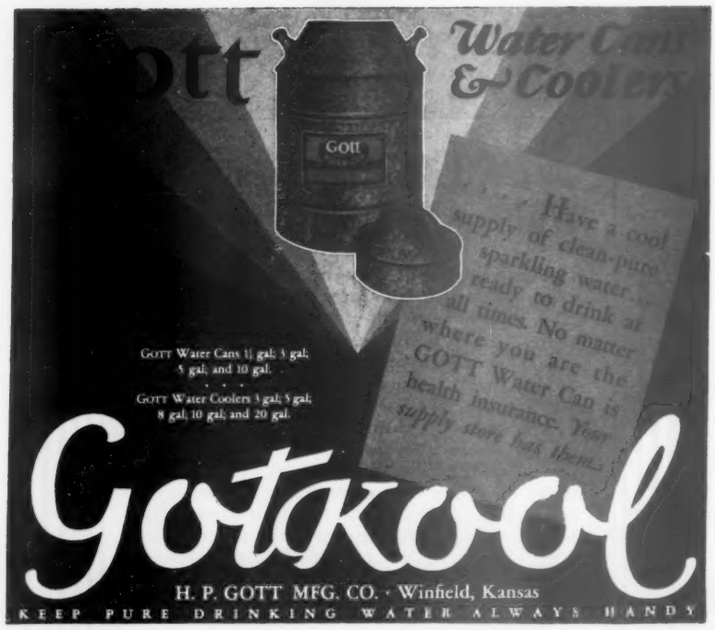
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THE OIL AND GAS JOURNAL
Tulsa, Okla.

feet west, NE cor., Section 5, Gonzales County School Land.

Howard County

Meriwether Oil Co.'s No. 1 Eva Smith, 150 feet north and 2,490 feet east, SW cor., Section 45, Block 33, T-1-S, T.&P. Survey.

Jack County

F. H. E. Oil Co.'s No. 1 J. M. Daugherty, 300 feet north and east of the southwest corner of the east 84 acres of the J. M. Daugherty 227-acre tract out of the I. Hughson Survey A-256. McGuire's No. 1 R. R. Clayton, 330 feet north and 300 feet east of the southwest corner of the east 80 acres of the James Mathews Survey A-398.

Jones County

Phillips Petroleum Co.'s No. 4 O. H. Pomroy, 330 feet south and east of the northwest corner of the O. H. Pomroy 106.6-acre tract out of Section 16, Block 19, T.&P. Survey. W. G. Clark's No. 1 E. Neuman, 330 feet south and 1,090 feet west of the most northerly NE cor., Section 52, Block 18, T.&P. Survey.

Palo Pinto County

Comanche Oil Corp's No. 1 J. D. Smith, 800 feet north and 300 feet west, SE cor., Section 1,727, T.E.&L. Survey.

Pecos County

Harry Adams Co.'s No. 1 University Land, 990 feet north and 150 feet west of the SE cor., Section 12, Block 17, University Land. Cosby Drilling Co.'s No. 2 Mrs. M. A. Smith, 150 feet south and west of the NE cor. SW NE, Section 24, Block 194, G.C.&S.F. Survey. Gibson & Johnson's No. 1 J. M. Grace, 330 feet south and 2,310 feet west, NE cor., Section 3, Block 179, T.C.R.R. Survey. McMan Oil & Gas Co.'s No. 7 Mrs. M. A. Smith-C, 660 feet south and 990 feet west, NE cor. S half, Section 25, Block 194, G.C.&S.F. Survey. Mid-Kansas Oil & Gas Co.'s No. 29 I. G. Yates-A, 1,384 feet south and 503 feet east, SW cor., Section 60, Block 1, I.&G.N. Survey, and located in the I. G. Yates Survey A-8195.

Shackelford County

Texas Consolidated Oil Co.'s No. 2 W. D. Reynolds, 150 feet north and east of the SW cor. N half NW, Section 23, Block 11, T.&P. Survey. Simms Petroleum Co.'s No. 10 H. A. Lones, 200 feet south and 1,000 feet east, NW cor., Section 64, Block 11, T.&P. Survey. Midwest Exploration Co.'s No. 5 J. F. Dyer, 1,370 feet south and 190 feet west, NE cor., Section 85, Block 12, T.&P. Survey. A. J. Hughes' No. 4 Diller Brothers, 1,084 feet southwest of the northeast line and 150 feet southeast of the northwest line of Section 4, B.S.&F. Survey. J. P. Harris' No. 2 L. H. Hill, 900 feet north and 150 feet east of the SW cor. East half SE, Section 2, Lunatic Asylum Land. B. P. Fenoglia's No. 1 J. H. Nail, 400 feet south and 660 feet east, NW cor. SE, Section 49, Block 10, E.T.R.R. Survey. Albany Oil Co.'s No. 1 W. D. Reynolds, Section 26, C NW SE, Section 26, Block 11, T.&P. Survey.

Stephens County

Texas Pacific Coal & Oil Co.'s No. 3 C. J. Winston, 330 feet north and 1,000 feet east, SW cor., Section 31, Block 4, T.&P. Survey. Lone Star Gas Co.'s No. 2 R. W. Brooks, 2,294 feet north and 600 feet west, SE cor., Section 54, Block 7, T.P. Survey. Loftin-Joradan and other's No. 1 W. E. Smith, 450 feet south and 855 feet west, NE cor., Section 1, Blind Asylum Land.

Throckmorton County

Shappell Oil Co.'s No. 2 Upshur County School Land, 450 feet south and 550 feet west, NE cor., Lot 27, J. F. Crittenden subdivision, Upshur County School Land, A-825. Conway Brothers & Woodson Oil Co.'s No. 2 J. G. Overcash, 766 feet north and 466 feet east, SW cor., Section 960, T.E.&L. Survey.

Ward County

Penn & Atlantic Oil Products Co.'s No. 1 Pecos Mercantile Co., 330 feet southwest of the northeast line and 330 feet southeast of the northwest line, SW half SE half, Section 16, Block 34, H.&T.C. Survey.

Wichita County

Magnolia Petroleum Co.'s No. 142-A H. Reilly, 1,245 feet north and 1,320 feet west of the northeast corner of the J. B. Johnson Survey A-169 and located in the

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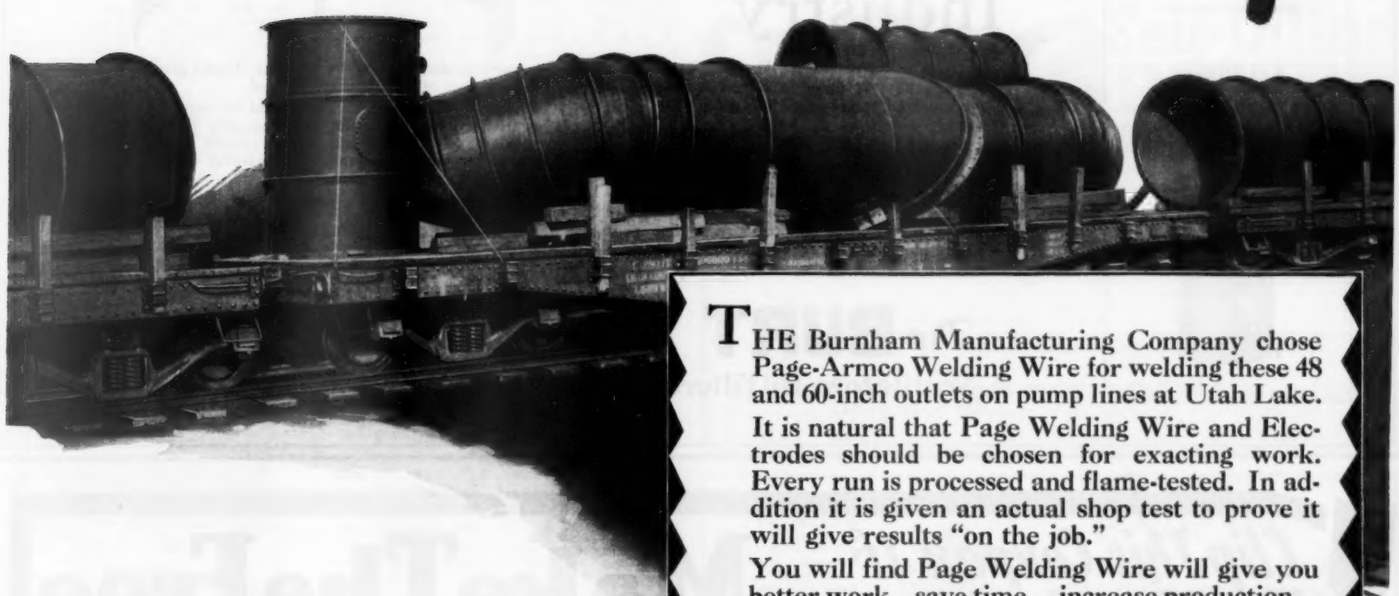

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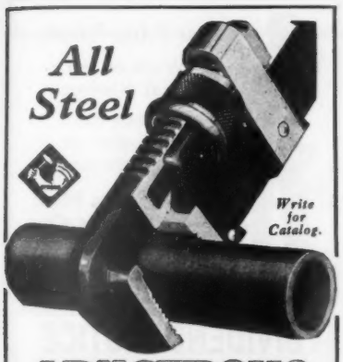

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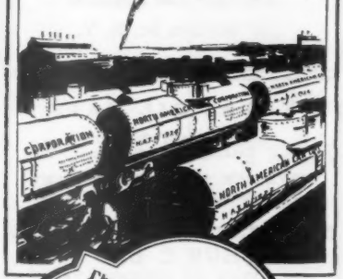

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L. C. Denison Survey A-55. Golding-Cochran & Mayfield's No. 4 J. L. & T. J. Waggoner, 150 feet north and 450 feet west, SE cor., Lot 22, H. George Survey A-454. W. H. Hammon and other's No. 2 J. H. & R. L. Bradley, 150 feet south and 2,700 feet east of the northwest corner of the S. Holloway Survey A-497. Mrs. R. A. Lanning, Administratrix's No. 10 S. M. McCarty, Lease 3, 750 feet north and 150 feet west of the southeast corner of the east 40 acres of the north 100 acres of the S. M. McCarty 231.4-acre tract out of the Sam O. Fowler Survey A-78. The Texas Company's No. 360 W. T. Waggoner, 775 feet north and 1,312 feet west, SW cor., Section 13, H.T.&B. Survey A-137 and located in Section 148, H &T.C. Survey A-784. Same company's No. 361 W. T. Waggoner, 775 feet north and 8 feet east, SW cor., Section 13, H. T.&B. Survey A-137. Same company's No. 362 W. T. Waggoner, 3,413 feet north and 338 feet east SW cor., Section 13, H. T.&B. Survey A-137. The Texas Company and other's No. 6 J. L. & T. J. Waggoner, 150 feet south and east, NW cor., Lot 29, H. George Survey A-454. The Texas Company and other's No. 7 J. L. & T. J. Waggoner, 150 feet south and west of the NE cor., Lot 28, H. George Survey A-454. United Producers Co.'s No. 1 Allen & Kemp-F, 150 feet north and 50 feet east, SW cor., Block 28, Kemp Wichita Valley Land.

Wilbarger County

Apple & Brandeberry's No. 2 W. T. Waggoner, 1,060 feet south and 580 feet west, NE cor., Section 32, Block 4, H.& T. C. Survey. C. P. Burton's No. 4 W. T. Waggoner-I, 2,130 feet south and 2,190 feet east, NW cor., Section 40, M.E. P.&P. Survey. Consolidated Oil Co's No. 3 W. T. Waggoner-O, 490 feet south and 2,490 feet east, NW cor., Section 40, M. E.P.&P. Survey. Fain-McGaha Oil Corp.'s No. 8 W. T. Waggoner-W, 40 feet south and 585 feet west of the northeast corner of the south 100 acres of the northeast (187 acres), of Section 32, Block 4, H.&T.C. Same Corporation's No. 2 W. T. Waggoner-Y, 505 feet south and 205 feet west, NE cor. NW SE, Section 43, M.E.P.&P. Survey. W. T. Knight's No. 3 W. T. Waggoner-A, 150 feet north and 450 feet west, SE cor. E half N half S half NW, Section 40, M.E P.&P. Survey. W. T. Knight's No. 1 W. T. Waggoner-D, 450 feet north of the middle of the south line of the NE, Section 21, Block 4, H.&T.C. Survey. W. T. Knight's No. 1 W. T. Waggoner-E, 150 feet north and east, SW cor. S half SE, Section 21, Block 4, H &T.C. Survey. W. A. Patterson and other's No. 1 W. T. Waggoner, 1,012 feet north and 2,440 feet west of SE cor. S half, Section 1, Block 4, H.& T.C. Robert Oil Corp.'s No. 1 W. T. Waggoner, 150 feet north and east of SW cor. NE SE, Section 17, Block 4, H.&T.C. Survey.

Shappell Oil Co.'s No. 1 I. M. Smith estate, 200 feet north and 1,300 feet east, SW cor., Section 18, Block 14, H.&T.C. Survey. Staley-Wynne & Co.'s No. 1 W. T. Waggoner-X, 1,087 feet south and 1,004 feet west, NE cor., Section 10, Block 4, H.&T.C. Survey. Waggoner Refining Co.'s No. 3 W. T. Waggoner-J, 660 feet south and 205 feet west, NE cor. W half NE, Section 25, Block 4, H.&T.C. Survey.

Young County

C. W. Boller and others' No. 1 T. Hunt, 150 feet north and west of the southeast corner of south 50 acres of the T. Hunt 102.6-acre tract out of Section 160, T.E.& L. Survey. L. G. Bradstreet Co. and others' No. 2 O. W. Mathews, 150 feet north and 2,118 feet west of the southeast corner of the O. W. Mathews 730.6-acre tract out of the A. Rohus Survey A-240. O. Bratcher's No. 8 J. C. C. Edwards, 450 feet south and 750 feet west of the northeast corner of the J. C. C. Edwards 100-acre tract out of the S. Tynes Survey A-274. Bridwell Oil Co. & Clark's No. 1 F. M. Cullers, 150 feet south and east of the NW cor., Section 25, Young County School Land, A-1,284. Bridwell Oil Co. and other's No. 1 Prideaux Brothers, 150 feet south and west of the northeast corner of the east half of the north 80 acres of the east 260 acres of Section 1, C.T.R.R. Survey A-68. Hutchens &

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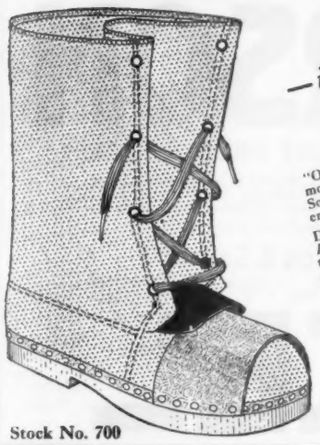

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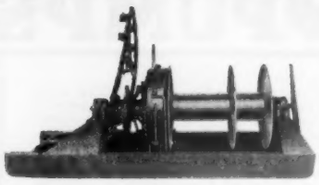

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Write us your requirements.

COLUMBUS, OHIO

Jone's No. 1 J. McCluer, 450 feet south and east, NW cor., Section 221, T.E.&L. Survey. Kimbrell & Lyles' No. 5 E. Dyer, 1,300 feet north and 250 feet east of the southwest corner of the W. W. Stroud Survey A-1,707. M. & V. Oil Co. and other's No. 2 J. K. Thomas, 1,137 feet north and 150 feet east. SW cor.. Section 155, T.E.&L. Survey. Robertson Drilling Co.'s No. 1 R. J. Calvin, 150 feet south and east of the northwest corner of the east 48 acres of the south 50 acres of the east 100 acres of the R. J. Calvin 200-acre tract out of the A. Rohus Survey A-240. Ryan & Stastny's No. 1 G. P. Stewart, 150 feet south and 1,500 feet east of the northwest corner of the G. P. Stewart 155-acre tract out of the S. Tynes Survey A-274. Shinola Oil Co.'s No. 2 H. F. Haygood, 550 feet south and 450 feet west of the northeast corner of the west 102 acres of the north half of Section 1,466, T.E.&L. Survey. The Texas Company's No. 2 G. P. Stewart-B, 150 feet south and west of the northeast corner of the G. P. Stewart 110-acre tract out of Section 1, B.B.B.&C. Survey A-35. Underwood Drilling Co. et al's No. 1 S. Bagley, 400 feet north and 1,500 feet west of the northeast corner of the A. Wood Survey A-1,274 and located in the J. B. Franklin Survey A-1,429. Wise & Jackson's No. 1 L. A. Snider, 450 feet north and 150 feet east of the southwest corner of the east half of the south 37 acres of the Robert Wilson Survey A-1,-276. Godley Oil Co.'s No. 4-A M. K. Graham, 150 feet south and 3,400 feet east of the northwest corntr of their 40-acre lease out of the S. Tankersley Survey A-278. Sims Petroleum Co.'s No. 2 V. W. Willis, 920 feet southwest of the northeast line and 920 feet southeast of the northwest line of Section 2,047, T. E.&L. Survey.

Corrections

In Archer County: F. P. Cullum and other's No. 1 Falls County School Land, 150 feet north and 62 feet east, SW cor., Section 9, Falls County School Land, A-130.

In Brown County: G. A. Buder, Trustee's No. 3 F. H. Cross, 450 feet south and 150 feet west of the northeast corner of the F. H. Cross tract out of the R. Honeycutt Survey No. 623, and the Jasper Kinney Survey No. 624.

In Cooke County: Kewanee Oil & Gas Co.'s No. 17 R. J. Timmis-A, 180 feet south and 313 feet east of the northwest corner of their 80-acre lease "A" out of the E.T.R R. Survey No. 5, A-363.

In Gray County: Shell Petroleum Corp.'s No. 3 R. S. McConnell, 300 feet north and west, SE cor. E half SW, Section 174, Block 3, I.&G.N. Survey.

In Hutchinson County: Phillips Petroleum Co.'s No. 1 Johnson Brothers (Ebson), 990 feet north and east of the southwest corner of the north 80 acres of the south 320 acres of Section 66, Block 46, H.T.C. Survey.

In Pecos County: Mid-Kansas Oil & Gas Co.'s No. 28 I. G. Yates-A, 712 feet north and 1,444 feet west of the most easterly NE cor., Section 31, Block 194, G.C.&S.F. Survey and located in the I. G. Yates Survey A-8,195.

In Stephens County: Lone Star Gas Co.'s No. 1 H. B. Henry, 2,294 feet north and 600 feet east, SW cor., Section 53, Block 7, T.&P. Survey.

J. C. ROBB DIES

J. C. Robb, dispatcher for the Gulf Refining Co. at the Homer pipe line station, died recently. He was one of the oldest telegraphers in the service and was an intimate of Thomas Alva Edison and Andrew Carnegie in their early days when they were operators. He was a member of the Old Time Telegraphers Association and was known throughout the country.

L. N. BENNINGHOFF DEAD

L. N. Benninghoff, veteran oil producer, died at Homeworth, Ohio, Saturday, June 8, age 76 years. He was born in Venango County in the heart of the first oil field in the United States and started in the oil business when a youth, following it throughout his life.

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Mask and Blower in separate cases.

Safety Gas Main Stopper Co.

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Imperial Royalties Company

Established April, 1920

Will pay the usual monthly dividend of 1½% on its $1.00 par Preferred shares on June 29. This is dividend No. 105 and makes a total of 178% paid to Preferred shareholders. Also the usual monthly dividend of 18 cents a share will be paid on its Class A Preferred Shares on June 29.

E. S. Horn, H. O. Bland, J. E. Horn, Trustees.

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Write for Circular.

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During the past week The Oil and Gas Journal has been overwhelmed with calls and congratulatory letters upon the complete and impartial manner in which The Journal reported the proceedings at the Federal Oil Conservation Board's interstate conference at Colorado Springs, the most important in the history of the industry.

One letter may be quoted as a sample:

> "Oil men who were unable to attend the Colorado Springs conference owe a debt to The Oil and Gas Journal for the thorough and complete report published in your issue of June 13. The meeting was of immense importance to everyone in the oil industry and the press association reports in the daily papers, being written for the general reader, necessarily omitted many details of special importance to oil men who were pleased to find them fully reported in The Oil and Gas Journal. The thanks and congratulations of the industry are due to The Journal for the comprehensive manner in which it performed this service, but, then, we have come to expect that sort of service from The Oil and Gas Journal."

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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS PIPE LINE STATEMENT FOR APRIL

Runs

	Month	Dy. av.
Prairie Pipe Line Co.* ...	4,530,000	151,000
Gulf Pipe Line Co.	1,564,949	52,165
Texas Pipe Line Co.	922,992	30,766
Empire Pipe Line Co.	1,161,291	38,710
Magnolia Pipe Line Co. ..	2,095,764	69,859
Cosden Pipe Line Co.	908,794	30,293
Sinclair Pipe Line Co. ...	3,240,000	108,000
Oklahoma Pipe Line Co...	3,194,549	106,485
Other lines	5,730,000	191,000
Total April	23,348,339	778,278
Total March	23,784,055	767,228
Difference	435,716	11,050

Shipments

Prairie Pipe Line Co.† ...	5,952,638	198,421
Gulf Pipe Line Co.	1,647,191	54,906
Texas Pipe Line Co.	1,146,592	38,220
Empire Pipe Line Co. ...	1,180,558	39,362
Magnolia Pipe Line Co. ..	2,216,023	73,867
Cosden Pipe Line Co.	825,750	27,525
Sinclair Pipe Line Co.† ..	3,095,208	103,174
Oklahoma Pipe Line Co. .	3,131,951	104,398
Other lines	6,000,000	200,000
Total April	25,195,911	839,863
Total March	25,855,029	834,035
Difference	659,118	5,828

Stocks

Prairie Oil & Gas Co.*	37,322,000
Gulf Pipe Line and Gypsy Oil Co.	9,579,763
The Texas Company	8,040,740
Empire Pipe Line Co.	4,128,767
Cosden Pipe Line Co.	3,519,000
Sinclair Crude Oil Pur. Co.*	20,600,000
Magnolia Petroleum Co.	9,855,607
Oklahoma Pipe Line Co.	3,133,733
Carter Oil Co.	11,488,724
Other lines*	11,750,000
Total April	119,418,334
Total March	121,191,264
Difference	1,772,930

*Estimated. †Prairie shipments include Texas crude oil and Sinclair shipments include Texas and Wyoming crude oil.

Note: Stocks do not include approximately 5,350,000 bbls. of crude oil held in storage on private tank farms and leases.

EASTERN PIPE LINE REPORT

Runs from Wells

In the following table will be found the regular receipts for wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for March and April:

	Mar., 1929	Apr., 1929
Nat. Transit	181,078.06	220,177.96
S. W. Pa. P. L.	102,780.57	96,471.45
Eureka P. L.	361,950.53	361,294.32
Buckeye P. L. (Macksb'g)	328,651.40	335,779.62
Buckeye P. L. (Cleve.)	11,850.63	12,265.09
Buckeye P. L. (Lima, etc.)	106,736.48	103,296.03
Indiana P. L.	5,695.98	5,130.73
Cum'land P. L.	188,917.24	203,144.51
N. Y. Transit	30,819.36	31,202.58
Tidewater P. L.	216,180.03	233,576.47
Pure Oil	60,961.13	60,020.89
Emery P. L.	64,575.89	65,713.91
Paragon Dev.	14,880.20	18,255.49
Stoll Oil Ref.	6,722.77	6,979.37
Total	1,681,800.27	1,753,308.42
Daily average	54,251.62	58,443.61

Note—Indian Refining Co. also reported other receipts of 228,673.37 bbls. Paragon Refining Co. had other receipts of 185,079.68 bbls. Paragon Development had other receipts of 396.90 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky for March and April:

	Mar., 1929	Apr., 1929
Nat. Transit	472,740.05	459,812.50
S. W. Pa. P. L.	324,198.08	363,716.29
Eureka P. L.	227,945.27	248,843.98
Buckeye P. L. (Macksb'g)	178,851.61	191,498.74
Buckeye P. L. (Cleve.)	2,675.09	1,941.40
Buckeye P. L. (Lima, etc.)	1,398,450.19	1,323,167.62
Indiana P. L.	1,426,742.83	1,380,184.34
Cum'land P. L.	202,271.56	184,506.68
Southern P. L.	.....	71,454.97
N. Y. Transit	207,577.62	186,779.49
Northern P. L.	185,794.76	179,598.23
Tidewater P. L.	154,430.49	179,487.31
Pure Oil	68,193.52	57,602.63
Emery P. L.	62,136.95	63,977.39
Paragon Ref.	176,375.05	185,079.68
Paragon Dev.	17,320.04	14,456.13
Total	5,005,703.11	5,092,107.38
Daily average	161,474.29	169,736.91

Indian Refining Co. reported other deliveries of 273,471.85 bbls.

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of March and April:

	Mar., 1929	Apr., 1929
Nat. Transit	731,188.54	716,361.64
S. W. Pa. P. L.	430,880.16	423,480.13
Eureka P. L.	1,227,449.21	1,305,585.15
Buckeye P. L. (Macksb'g)	496,081.38	517,342.15
Buckeye P. L. (Cleve.)	53,245.56	36,739.70
Buckeye P. L. (Lima, etc.)	2,015,652.51	1,977,236.44
Indiana P. L.	517,499.27	541,456.22
Cum'land P. L.	568,233.96	589,250.22
Southern P. L.	538,367.15	472,810.29
N. Y. Transit	283,675.14	319,023.52
Northern P. L.	377,796.87	384,395.22
Tidewater P. L.	1,369,220.70	1,317,878.72
Pure Oil	8,038.47	11,307.22
Emery P. L.	12,036.26	14,291.05
Paragon Ref.	18,740.25	18,502.92
Indiana Ref.	52,393.15	68,506.50
Paragon Dev.	4,622.34	8,966.70
Tuscarora	296,936.59	255,038.02
Total	9,002,057.51	8,978,171.85
Increase	263,222.55	.....
Decrease	.....	23,885.66

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of March and April showing the gross stocks of the above fields:

	Mar., 1929	Apr., 1929
Pennsylvania	3,315,864.74	3,399,836.77
Lima	578,882.26	557,347.94
Kentucky	742,122.61	781,911.36
Mid-Continent	4,038,082.57	3,956,708.61
Illinois	327,105.33	282,367.17
Total	9,002,057.51	8,978,171.85

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1926	1927	1928	1929
Jan.	55,630	56,209	52,904	51,749
Feb.	60,394	61,298	57,002	51,833
Mar.	61,644	63,247	57,485	54,252
April	63,019	60,927	56,812	58,444
May	60,580	60,284	62,067	.....
June	61,121	62,757	58,230	.....
July	63,206	58,674	57,144	.....
Aug.	61,815	60,870	57,745	.....
Sept.	64,639	60,285	53,487	.....
Oct.	161,132	147,080	58,100	.....
Nov.	67,774	57,275	53,565	.....
Dec.	58,755	53,089	52,025	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1926	1927	1928	1929
Jan.	156,056	141,227	146,465	165,721
Feb.	159,488	138,534	167,368	159,387
Mar.	150,239	133,777	158,883	161,474
April	152,374	140,227	172,935	169,737
May	160,998	144,594	180,559	.....
June	160,267	149,772	188,024	.....
July	160,045	151,850	189,470	.....
Aug.	151,929	188,653	192,853	.....
Sept.	158,915	144,213	194,138	.....
Oct.	161,132	147,036	176,000	.....
Nov.	172,608	150,975	176,898	.....
Dec.	136,428	144,504	173,572	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1927	1928	1929
Jan.	9,718,008	12,276,710	7,596,564
Feb.	10,119,162	12,180,419	8,738,835
Mar.	10,794,044	12,239,725	9,002,058
April	11,112,295	11,740,126	8,978,172
May	11,359,381	11,602,468	.....
June	11,493,673	11,287,678	.....
July	11,458,128	10,819,331	.....
Aug.	11,989,115	10,236,742	.....
Sept.	12,212,716	9,660,910	.....
Oct.	12,047,661	9,229,709	.....
Nov.	11,939,740	8,366,553	.....
Dec.	12,340,297	7,539,555	.....

Franklin Pipe Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

1928—	Runs	Shipments	Stocks
June	3,153.08	2,779.02	17,922.58
July	2,902.50	3,628.02	17,197.06
August	2,874.11	2,350.13	17,721.04
September	2,820.31	5,255.42	15,285.93
October	1,289.93	538.89	17,551.93
November	2,663.53	788.47	19,426.99
December	3,053.60	3,167.53	19,426.99
1929—			
January	2,099.90	.....	19,313.06
February	2,469.47	6,873.20	17,009.23
March	3,330.82	3,595.01	16,745.04

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, May 1	2,377,793.51
Runs from wells	488,775.24
Other receipts	496,648.12
Regular deliveries	600,225.37
Other deliveries	383,669.25

The amount of Illinois oil run by the Tidewater Pipe Line Co. in April was 26,599.03 bbls. Deliveries were 54,072.59 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1928—	Runs	Deliveries
May	632,968.64	522,980.51
June	608,552.49	625,087.33
July	612,286.49	566,678.37
August	633,074.85	671,864.02
September	570,307.91	737,293.50
October	626,147.64	626,290.40
November	576,332.85	702,589.93
December	584,663.09	491,517.26
1929—		
January	570,727.38	545,084.66
February	517,330.17	503,387.70
March	728,319.67	586,049.60
April	515,374.27	654,297.96

Tide Water Pipe Line Co., Ltd., also delivered in April 158,893.01 bbls. Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

Average bbls. per day—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans Port Arthur Baton Rouge Sabine Pass	Tampa	Total	Total all ports
November	21,333	5,200	25,400	18,200	7,100	77,233	.....	.....	.....	1,000	78,233
December	4,968	2,968	24,678	18,806	3,064	54,484	.....	.....	.....	2,419	56,903
January	15,838	.....	16,676	11,838	7,938	52,290	.....	.....	.....	5,161	57,451
February	14,214	.....	38,750	17,250	11,607	81,821	.....	.....	.....	3,750	85,571
March	19,902	968	31,268	18,581	7,355	78,065	.....	.....	.....	.....	78,065
April	16,667	.....	32,333	13,233	2,234	64,467	.....	.....	.....	7,333	65,200

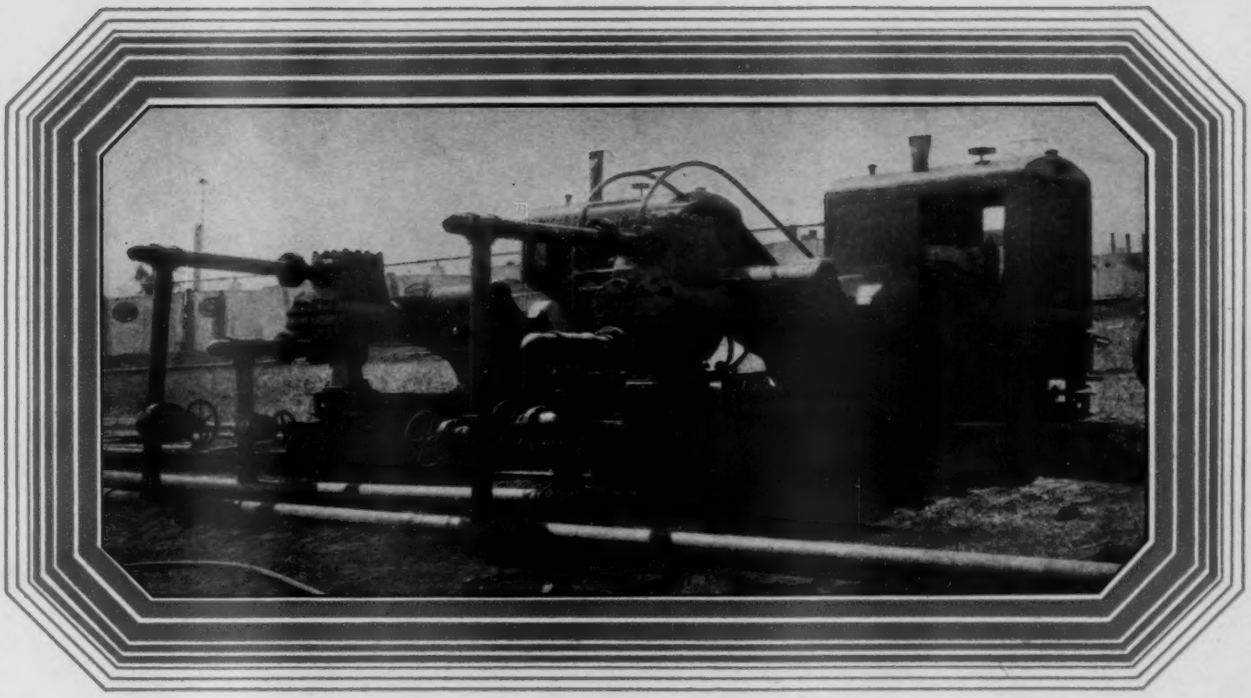
AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans Port Arthur Baton Rouge Sabine Pass	Tampa	Total	Total all ports
November	18,400	16,033	133,700	30,267	8,433	206,833	1,333	37,167	4,633	43,133	249,966
December	15,419	15,968	140,871	42,323	8,709	223,290	2,903	35,129	2,355	40,387	263,677
January	11,936	3,903	130,065	34,871	15,709	201,484	.....	34,503	4,093	1,287	40,193	241,677
February	13,750	15,071	135,179	32,750	17,893	214,643	.....	34,357	821	143	35,321	249,964
March	18,548	26,044	145,516	39,162	28,162	257,452	.....	42,581	2,322	.....	44,903	302,355
April	19,733	18,367	137,233	50,267	22,567	248,167	6,867	25,066	10,367	1,500	43,800	291,967

GROSS PRODUCTION IN UNITED STATES FOR 12 MONTHS

(In barrels of 42 gallons)

1928—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
May:	Month	19,331,866	19,443,355	21,220,046	3,367,809	2,843,847	1,926,026	2,525,043	3,619,000	74,276,992
	Daily average	623,609	627,205	684,518	108,639	91,737	62,130	81,447	116,742	2,396,032
June:	Month	19,164,244	18,482,981	19,877,936	3,202,050	3,075,911	2,074,422	2,425,470	3,401,000	71,704,014
	Daily average	638,808	616,099	662,598	106,735	102,530	69,147	80,849	113,367	2,390,134
July:	Month	19,754,458	18,809,188	22,055,737	3,171,548	3,792,139	2,238,090	2,492,586	3,487,000	74,800,746
	Daily average	637,241	606,748	711,475	102,308	90,969	72,131	80,406	112,484	2,412,927
August:	Month	19,444,899	20,840,804	22,339,131	3,147,058	2,711,787	1,989,264	2,561,840	3,556,000	76,590,783
	Daily average	627,255	672,284	720,445	101,518	87,477	64,170	82,640	114,709	2,470,670
September:	Month	18,908,169	22,456,860	21,554,269	3,047,250	2,540,070	1,830,225	2,432,430	3,229,000	75,998,273
	Daily average	630,272	748,562	718,207	101,575	84,669	61,007	81,047	104,300	2,533,279
October:	Month	19,430,992	23,431,071	22,176,853	3,058,460	2,652,484	1,836,221	2,571,822	3,612,000	78,769,903
	Daily average	626,806	755,841	715,376	98,660	85,564	59,233	82,962	116,516	2,540,964
November:	Month	19,907,526	23,078,680	20,791,798	2,977,800	2,476,080	1,801,914	2,388,870	3,348,000	75,770,668
	Daily average	663,584	735,956	693,059	99,260	82,536	60,064	79,629	111,600	2,505,689
December:	Month	21,574,703	22,425,732	22,180,102	2,988,400	2,521,571	1,846,841	2,289,040	3,581,000	79,407,379
	Daily average	695,958	723,410	715,487	96,400	81,341	59,576	73,840	115,516	2,561,528
1929—										
January:	Month	23,385,939	22,417,030	23,412,192	2,861,641	2,453,526	1,807,887	2,076,070	3,379,000	81,793,285
	Daily average	754,385	723,130	755,232	92,311	79,146	58,318	66,970	109,000	2,638,493
February:	Month	22,300,707	20,446,764	20,816,209	2,557,968	2,164,194	1,569,930	1,965,656	3,122,000	74,935,428
	Daily average	796,454	730,313	743,434	91,356	76,936	56,068	70,202	111,500	2,676,265
March:	Month	24,324,729	20,838,262	24,358,592	2,951,076	2,241,734	1,756,153	2,195,822	3,502,000	82,169,369
	Daily average	784,669	672,202	784,669	95,196	72,314	56,650	70,833	113,000	2,650,622
April:	Month	23,295,060	20,235,390	23,493,097	3,106,980	2,188,680	1,702,497	2,085,030	3,516,000	79,622,734
	Daily average	776,502	674,513	783,102	103,566	72,956	56,750	69,501	117,200	2,654,090
Total 12 months		250,823,292	251,908,197	264,275,962	36,438,040	30,652,035	22,379,470	28,009,680	41,353,000	926,839,576



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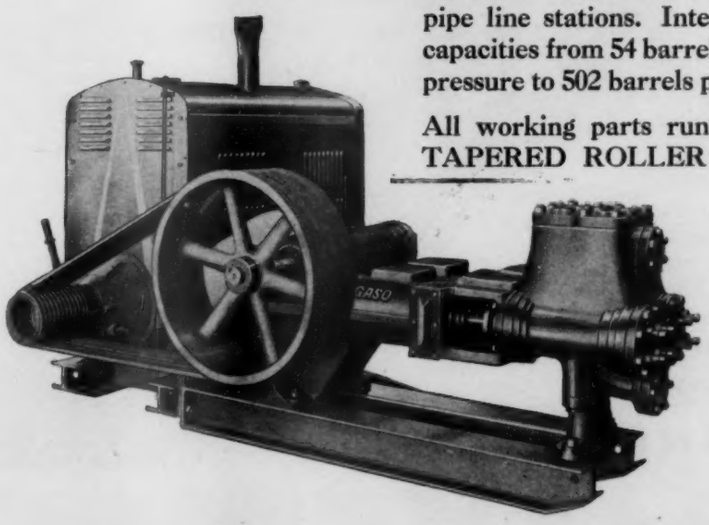

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